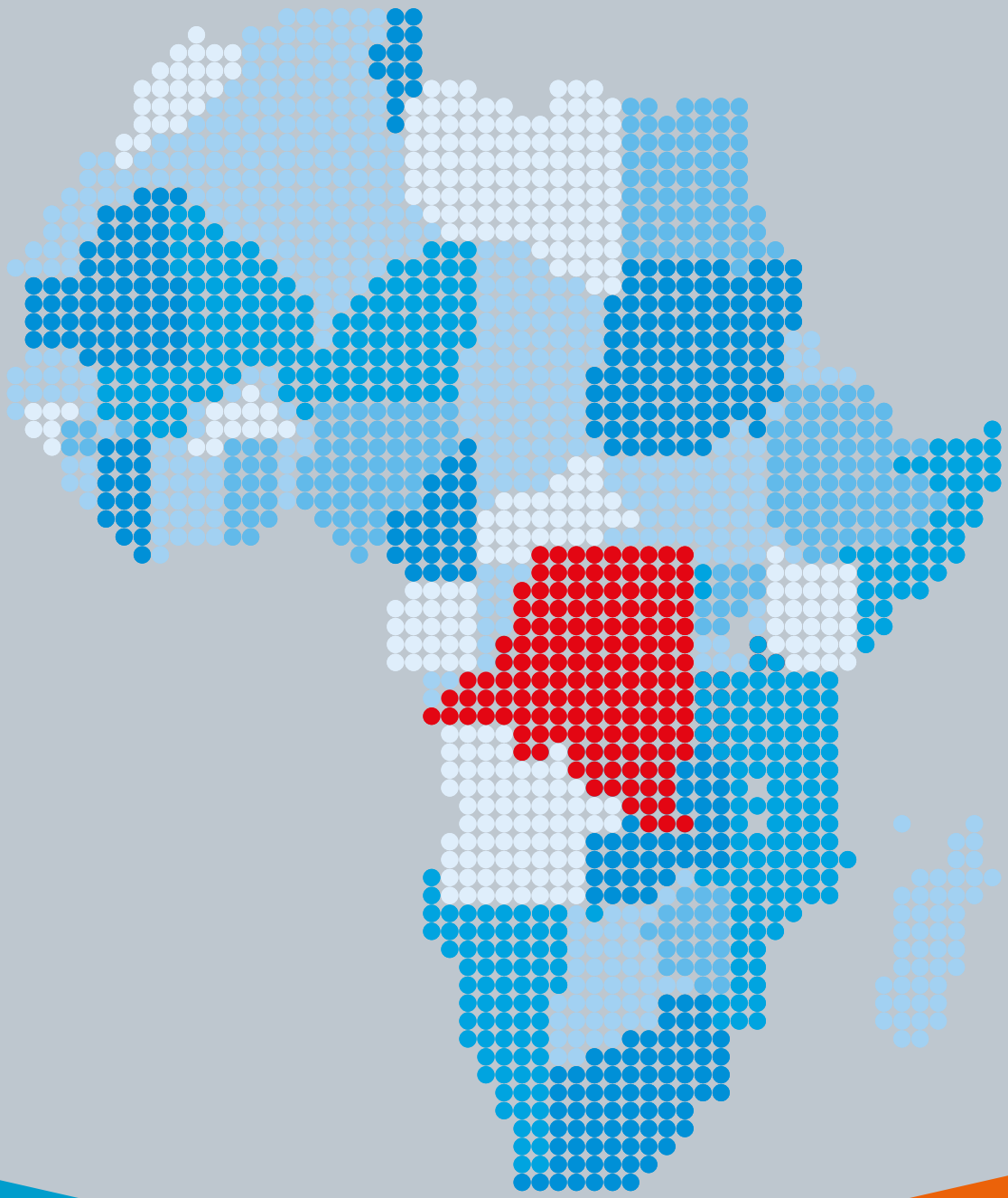
Digital inclusion and mobile sector taxation in the Democratic Republic of the Congo



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NOVEMBER 2015

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Executive Summary

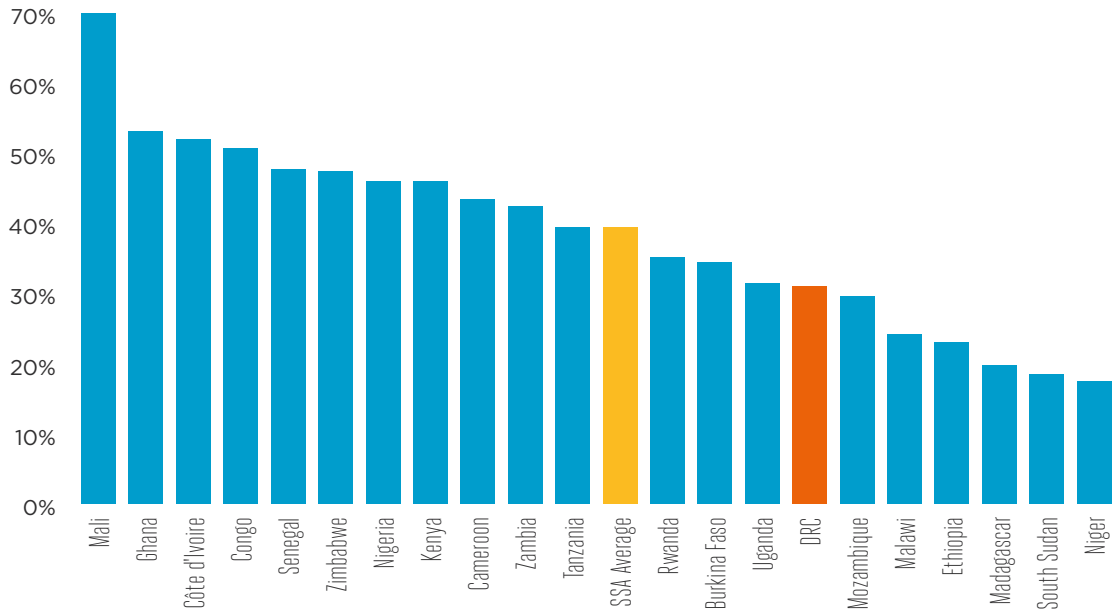
There are a number of barriers to greater digital inclusion in the Democratic Republic of the Congo

The Democratic Republic of the Congo (DRC) is one of the poorest countries in the world, with a GDP per capita of US$ 475 in 2014 and with 64% of the population living below national poverty lines in 2012. Social and political unrest have also affected the country in recent years.

In this complex environment, mobile telephony represents a success story for the country. Mobile penetration grew from 2.2 million unique subscribers in 2005 to over 22 million in Q2 2015, a ten-fold increase. The contribution of mobile operators to the Congolese economy is substantial: the ITU reports that in the five year period from 2006 to 2010, operators' contribution to GDP was over US$ 5.2 billion, amounting to 5.9% of GDP each year on average. Further, according to the World Bank, in 2008, the mobile industry contributed more than US$ 160 million to the government budget, over 37% of the revenue collected by the national tax collection agency. Additionally the GSMA estimated that in 2010, mobile industry revenues comprised 4.1% of GDP, growing to 4.9% in 2014.

Despite these developments, the DRC lags behind many African countries in mobile connectivity: the average mobile penetration in Sub Saharan Africa (SSA) stands at 40%, compared to the DRC's 31%. Further, 3G penetration stands at 3% compared to 10% in SSA.

Unique subscriber penetration rate in a selected sample of SSA countries



Source: GSMA Intelligence

Figure 1

In countries with low economic and social development, the role of Information Communications and Technology (ICT) in advancing inclusive growth is well documented, and mobile is paramount in delivering economic and social benefits. Mobile is a cost-effective way of extending access to broadband, driving the growth of the knowledge economy and developing digital capabilities across all sectors of the economy.

Increased mobile penetration and use has the potential to bring a number of benefits including promoting digital inclusion, enabling many more Congolese to benefit from the exchange of information for business and social purposes, increased productivity, and can improve social cohesion and participation, access to education, healthcare and government services.

Mobile can also support and enhance social development. Mobile applications are already in use, which have given many Congolese people access to essential and life-changing services. For example, the use of mobile money has grown significantly, which may have particularly significant benefits given that it is estimated that only 4% of Congolese have a traditional bank account. Additionally, mobile gives the DRC's large farming community access to information that helps to make them more efficient and improve their income. Support for refugees has also been facilitated by mobile applications.

Despite these benefits, there are still a number of barriers that are holding back the mobile sector in the DRC, which include:

- Mobile services remain unaffordable to many of the DRC's population: for example, it is estimated that those in the poorest 20% of households would have to spend 19% of their annual income for a basic phone and even the richest 20% would have to spend a third of their income to afford a premium phone.

- The population is large, dispersed and with low levels of education, which creates challenges in expanding coverage and encouraging purchase and use of mobile services.

- There are significant infrastructure challenges facing operators and consumers alike in terms of energy transmission. Frequent power interruptions or complete lack of infrastructure in some areas, mean that operators must use alternatives at significant cost or not cover parts of the country. In 2010, the World Bank deemed that the DRC was facing "probably the most daunting infrastructure challenge on the African continent".

- Complex taxation and regulation on mobile operators increase the costs of doing business, with mobile-specific barriers including mandatory paper-based customer registration for consumers. Operators are also subject to uncoordinated national and regional regulations and taxes, have to make payments to multiple revenue authorities and are subject to oversight by a number of different regulatory bodies often with overlapping jurisdiction.

While these barriers are present across the region, other SSA countries have managed to achieve higher access and usage of mobile service. For example, Kenya and Tanzania have rapidly become world leaders in mobile payments. With the appropriate polices, including on industry taxation, the DRC has potential to follow the example of regional leaders.

This paper focuses on the taxation barrier.

Higher taxation on mobile compared to other goods and services risks reducing growth in the mobile sector and the DRC's overall economic growth

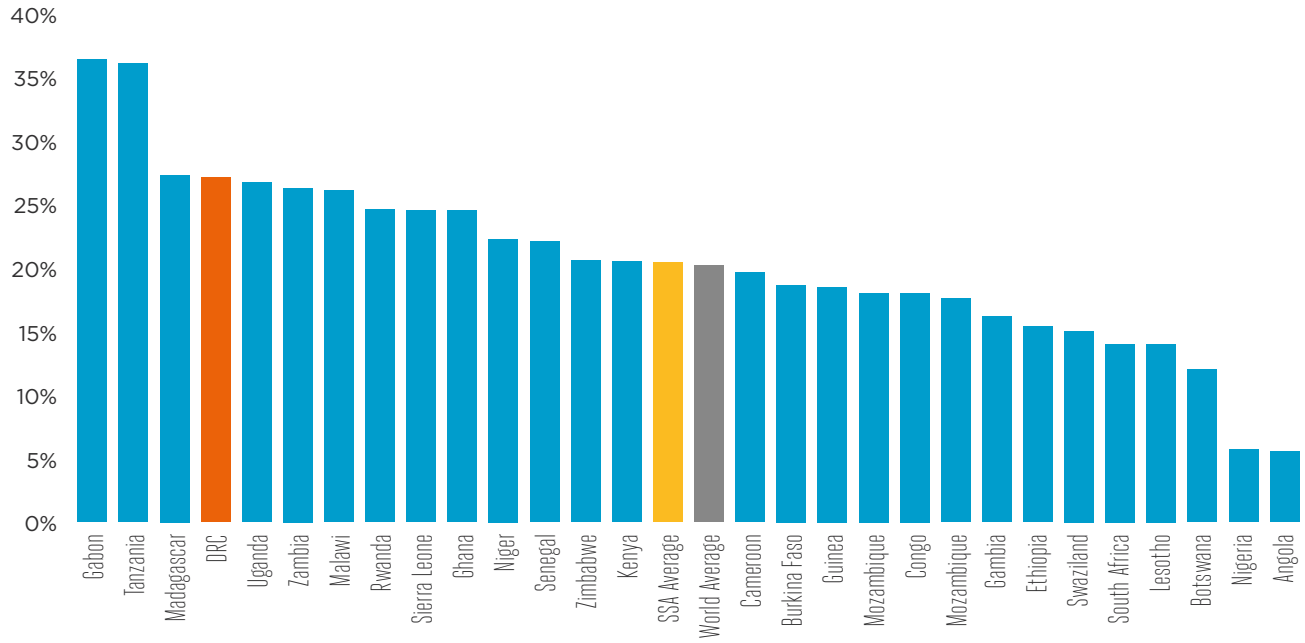
The mobile sector in the DRC is subject to significant sector specific taxation that affects mobile disproportionately compared to other services: in addition to VAT, mobile services are subject to an additional excise duty of 10%, which directly applies to consumer prices, similarly to VAT. According to data for a recent report by GSMA, only 14 countries in SSA of the 29 surveyed apply excise taxes.

The excise tax has the potential to cause distortions to the mobile market by raising the price of mobile services for the Congolese people and reducing the return on investment for operators. Mobile services create positive externalities across society by facilitating communication and the flow of the information, increasing productivity throughout the economy. However, the mobile excise duty in the DRC treats mobile differently from standard goods and services and in an analogous way to products with negative social impacts such as alcohol, tobacco and gambling for which governments typically find it desirable to discourage consumption. This may disincentivise digital inclusion and limit the realisation of the benefits of mobile.

In addition, taxes on handsets such as the customs duty of 27.6% that applies to imported handsets, may lead to higher device acquisition costs for DRC consumers which particularly affects poorer consumers. Recognising the importance of affordable handsets to spur mobile access, countries such as Kenya have recently exempted handsets from taxation. In Kenya, in the three years after the exemption, the VAT reduction contributed to an increase in handset sales of 200%, outpacing growth elsewhere in Africa.

The price increase effect of the excise duty combines with the customs duty on imported handsets to raise the total cost of mobile ownership (TCMO), a measure that combines both handset and mobile usage costs, which consumers implicitly consider when deciding whether they should purchase mobile services. As a whole, consumer taxes are high by African and international standards as measured by considering consumer taxes as a proportion of TCMO, shown in Figure 2.

Consumer taxes as a percentage of TCMO across SSA countries for which data was available



Source: Data from GSMA (2015), Digital Inclusion and Mobile Taxation, updated with data for the DRC, Deloitte Analysis. Note that the World Average refers to the average across the 110 countries included in the survey, the SSA Average refers to the average across the 28 SSA countries for which data is available

Figure 2

In addition to these consumer taxes, operators pay a substantial amount each year in other taxes and fees, further undermining incentives for investment. Fees include a regulatory contribution of 2% of GSM and internet revenues, numbering fees, spectrum fees and international and domestic interconnection charges.

Overall, in 2014 operators are estimated to have paid US$ 454 million in taxes and regulatory fees, representing 27% of the industry revenues.

By transitioning to a tax system where mobile is treated equally to other goods, the DRC government can promote digital inclusion, economic growth and fiscal stability

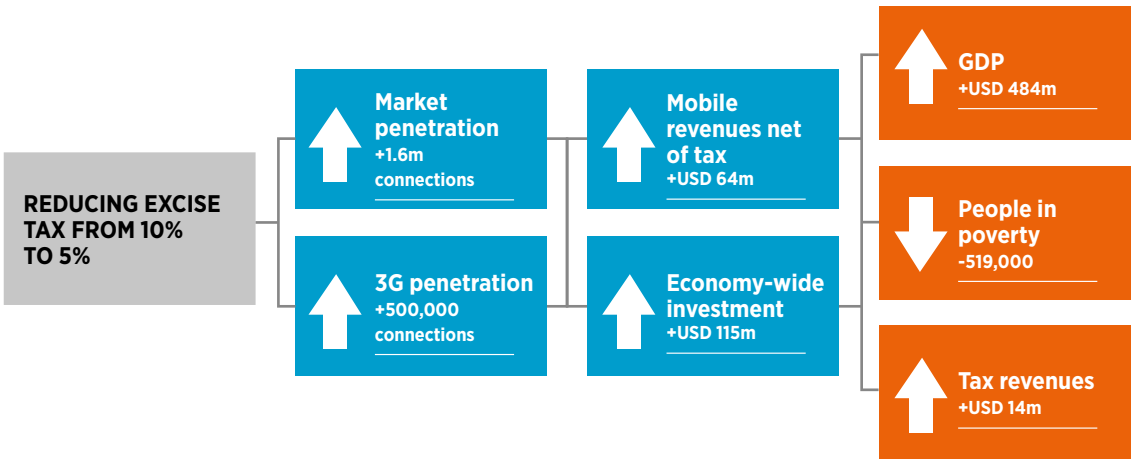
Mobile operators recognise the role of the industry in supporting government revenues and contributing to public services. However, taxation on mobile could potentially deliver short-term benefits to government revenues at the cost of long-run socio-economic development. The mobile operators have noted that current proposals on next year's national budget include changes to tax law that may increase the tax burden specific to the telecommunications sector. This may create further barriers to digital inclusion.

By transitioning to a taxation structure where the mobile industry is treated equally to other sectors of the economy, the government can increase digital and financial inclusion and economic growth, and has the potential to generate higher tax revenues through more efficient and broader-based taxation. Reforming mobile taxation has the potential to further increase and enable the investment required to expand coverage and quality of service. A phased movement toward eliminating sector-specific taxation would be consistent with principles of efficient taxation recommended by international organisations such as the IMF.

A model of the mobile sector in the DRC and its macroeconomic impacts was developed to estimate the impacts of changes to taxation on mobile penetration, economic growth and tax revenues. The quantitative impacts of a series of potential reforms are estimated in this report. The potential effects of these reforms have been considered separately only and interaction between the policy reforms would need to be considered in order to calculate the potential cumulative effect.

Reducing the excise duty on mobile services from 10% to 5% has the potential to reduce the cost of mobile services for consumers, incentivising many non-subscribers to acquire a mobile connection for the first time. As a result, this could add an additional 1.6 million mobile connections between 2016 and 2020, of which approximately 500,000 are expected to be mobile broadband connections using 3G technology.

Potential economic impact in 2020, relative to the base case scenario, of reducing the excise tax on mobile related products



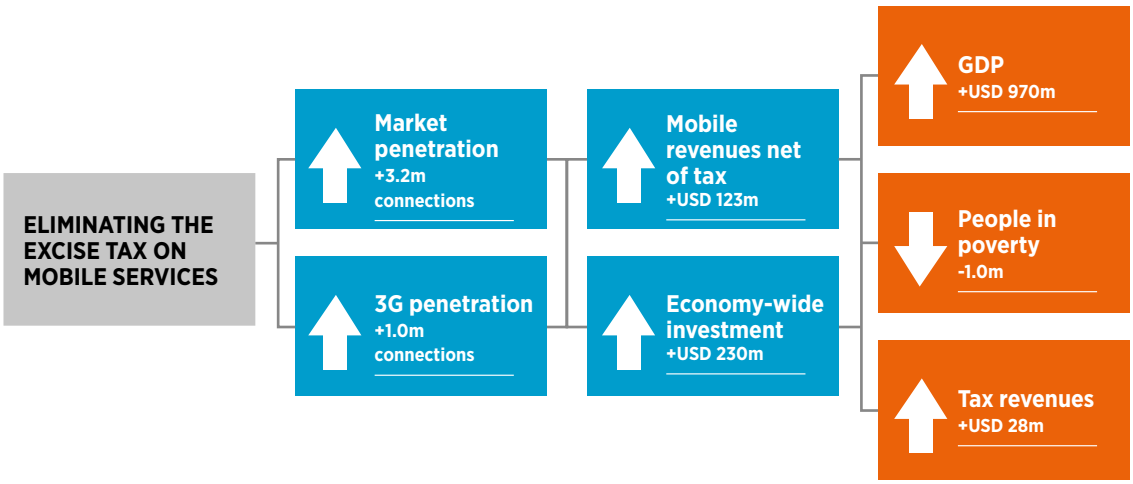
Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database.

Figure 3

Enhanced mobile usage would drive growth within the sector and its supply chain and increase productivity for new users. As a result of this enhanced economic activity, the government of the DRC could potentially achieve revenue neutrality within four years and gain up to US$ 14 million in additional revenues in 2020.

Eliminating the excise duty on mobile services has the potential to double the effect, adding 3.2 million mobile connections between 2016 and 2020 on top of the change forecast, of which approximately 1 million are expected to be mobile broadband connections.

Potential economic impact in 2020, relative to the base case scenario, of eliminating the excise tax on mobile related products



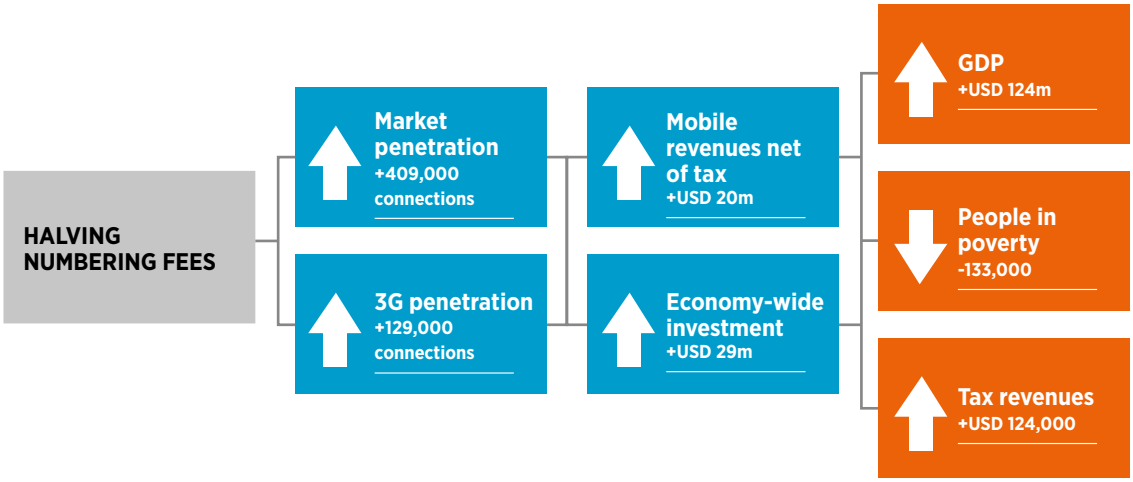
Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database.

Figure 4

This greater reduction in the tax level could also allow the government to achieve a neutral tax revenue impact within four years as a result of the enhanced economic activity enabled by increased mobile penetration. The potential tax revenue increase in 2020 would rise to US$ 28 million reflecting the larger gains for bolder policy.

Halving numbering fees has the potential to reduce the cost of connections for operators and incentivise investment in expanding coverage. If operators passed these savings onto consumers in the form of lower prices, reduced numbering fees could increase demand for mobile services. Under this assumption, this has the potential to lead to increased aggregate investment by up to US$ 86 million cumulatively from 2016-2020.

Potential economic impact in 2020, relative to the base case scenario, of halving the annual standard numbering fees



Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database.

Figure 5

This reduction in numbering fees could increase the number of connections in 2020 by 410,000, which could potentially reduce the number of people living in poverty by 133,000 by enabling inclusive economic growth.

Based on evidence from a series of studies[1] and the best practice principles outlined by the IMF[2], as well as on consultation with GSMA and mobile operators, a number of areas for tax reform have been identified which could support the mobile sector in further contributing to economic growth and government revenues over and above its current impact:

- **Development of ICT usage across sectors:** By reducing mobile-specific taxation, the government could increase the number of mobile connections, promoting digital inclusion. This has the potential to enable the widespread use of ICT across areas such as banking, agriculture and the provision of government services. This has the potential to provide new opportunities for innovation and the development of new applications and content, fostering further growth within the sector.

- **Increased economic development:** Based on the modelling described above, the tax reform alternatives examined have the potential to increase the usage of mobile services and uptake of mobile broadband and in the longer term has the potential to increase investment in the mobile sector and GDP.

- **Support in the transition towards a knowledge-based economy:** Reforming mobile sector taxation has the potential to encourage wider spread use of mobile broadband and the development of mobile applications for use in agriculture, healthcare and education, and the creation of local content can also promote higher-skilled employment and the transition to a knowledge-based economy.

- **Improved network infrastructure:** Ensuring an equitable structure of regulatory fees has the potential to increase the investment required to further improve mobile broadband network infrastructure. Further international investment could allow for economies of scale for mobile operators, allowing reduced prices for consumers in the longer term and facilitating the spread of mobile broadband.

- **Sustainable government revenues:** Achieving the government's ICT objectives need not result in a reduction in government revenues in the medium to long term. By increasing productivity and economic growth, eliminating the excise duty on mobile services has the potential to generate up to US$ 28 million in additional tax revenue in 2020.

1. GSMA/Deloitte, studies on digital inclusion and mobile taxation in Ghana, Tanzania, Pakistan; GSMA/Deloitte (2014), Mobile taxes and Fees - A Toolkit of Principles and Evidence.
2. IMF (2001), Tax policy for developing countries.

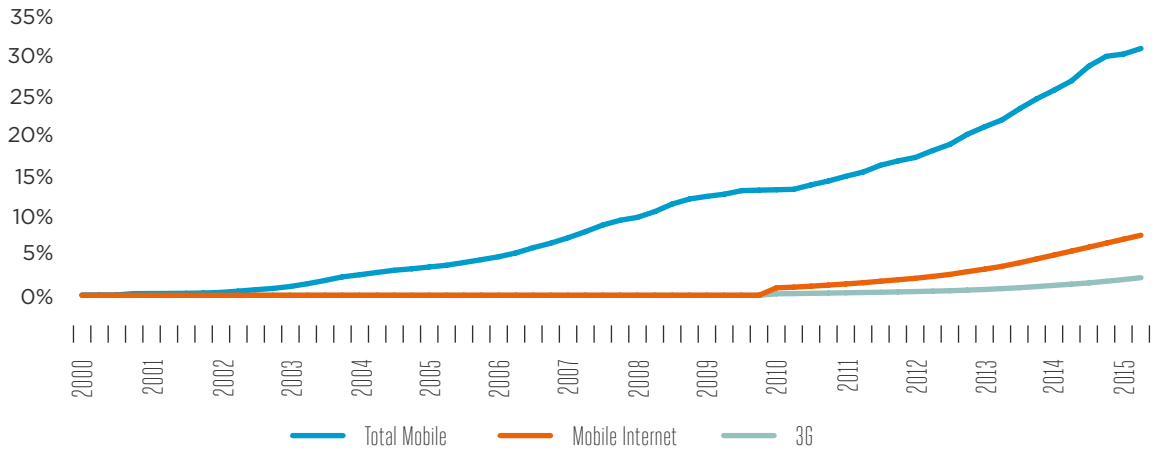
1. The mobile industry in the Democratic Republic of the Congo

The Democratic Republic of the Congo (DRC) is one of the countries with the lowest income levels in the world, and is characterised by high levels of social unrest. The telecommunications sector in the DRC remains one of the least developed in the world. Challenges to expanding usage and coverage of services include affordability, the predominantly rural population, lack of infrastructure and regional instability. However, competition in the market is high, with four mobile operators present in the market: Vodacom (with a market share of 32%), Airtel (21%), Tigo (16%) and Orange (15%).[3]

1.1 Mobile usage is low but on the rise in the DRC

In the DRC, there are now over 22 million unique subscribers, ten times the number ten years ago[4]. This represents mobile penetration in terms of unique subscribers[5] of 31% of the total population. Indeed, the majority of participation in the telecommunications sector is via mobile, with a fixed-line penetration of around 1%. 3G services are starting to develop, with penetration growing from 1% in 2013 and to 2.6% in Q2 2015. There are currently around 6 million mobile internet users, half of whom adopted mobile internet within the last two years.

Total mobile and 3G penetration rates in the DRC[6]



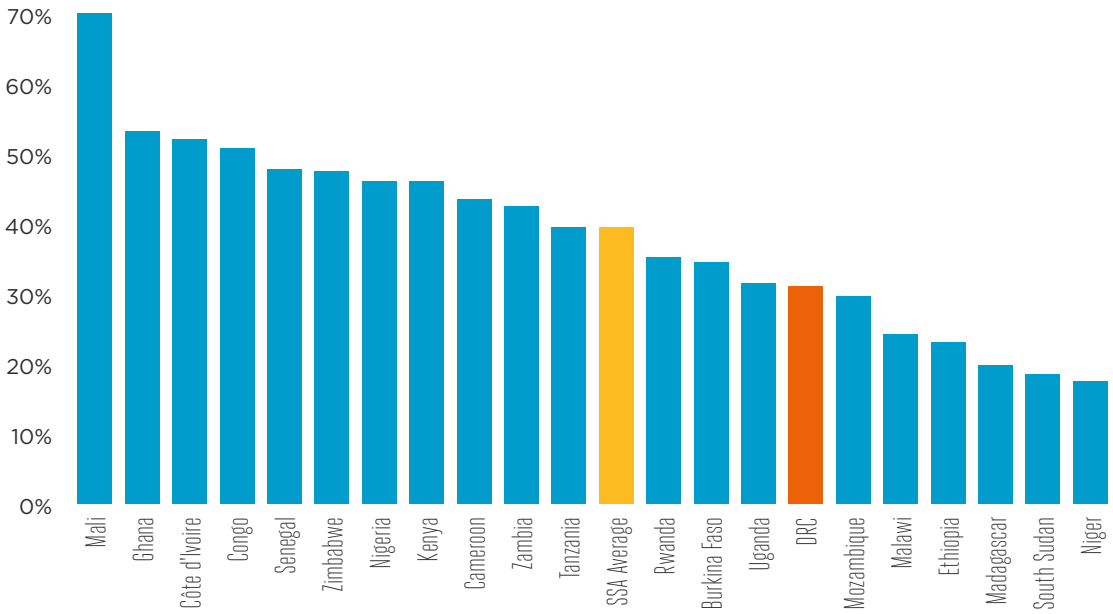
Source: GSMA Intelligence

Figure 6

3. Autorité de Régulation de la Poste et des Télécommunications du Congo (2015), Observatoire du marche de la telephonie mobile - Rapport du 2ème trimestre 2015.
4. GSMA Intelligence.
5. Unique subscribers refer to the number of individual users of mobile services. This is distinct from the number of connections, with unique subscribers often having multiple connections.
6. In terms of unique subscribers.

Figure 7 shows unique subscriber penetration for the DRC, a selected sample of Sub-Saharan African (SSA) countries and SSA as a whole. Given that the DRC is a low income country with a high population, the countries have been selected from the original group of 47 SSA countries by considering comparable populations and incomes[7]. As shown, unique subscriber penetration remains behind the current average mobile penetration for SSA[8], which stands at nearly 40%.

Unique subscriber penetration rate in a selected sample of SSA countries

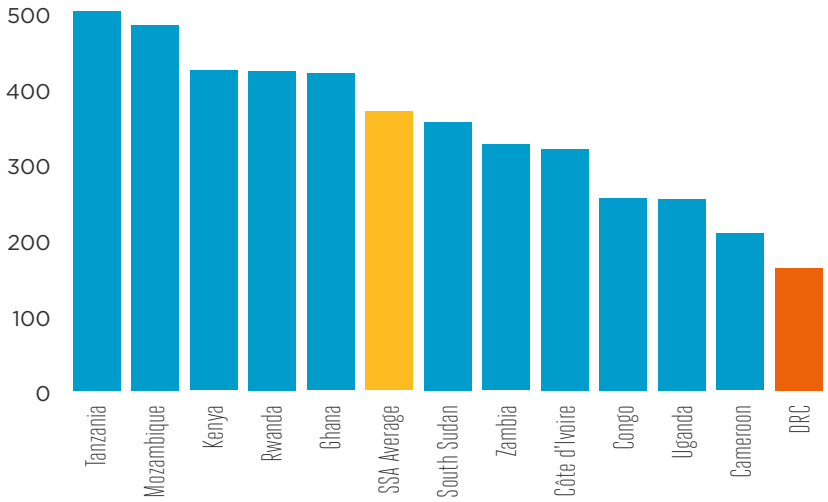


Source: GSMA Intelligence

Figure 7

Mobile usage is also low in terms of minutes of use, as shown in Figure 8, with an average of 162 minutes of use per connection in 2014, compared to the SSA average of 298 minutes per connection. This is less than half the usage in countries such as Kenya and Rwanda.

Minutes of use per connection in a selected sample of SSA countries for which data is available[9]



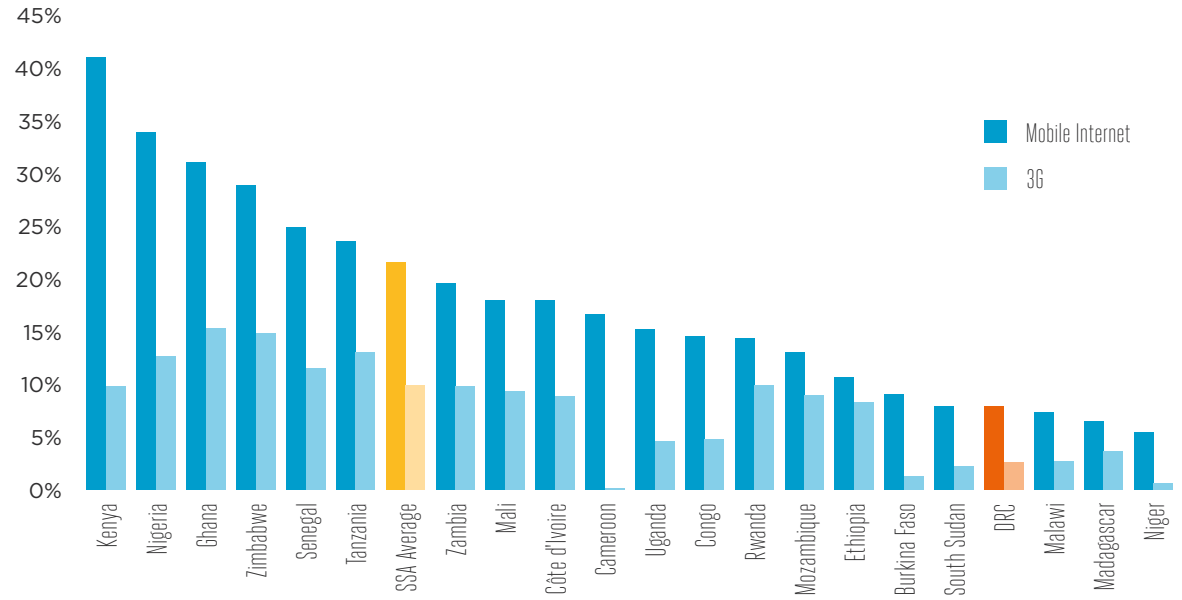
Source: GSMA Intelligence and Deloitte analysis, based on operator data

Figure 8

7. For clarification the 21 countries in the sample are: Burkina Faso, Cameroon, Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Uganda, Zambia, Zimbabwe.
8. A region comprising 47 countries and a population of over 831 million people.
9. Countries shown are a sub-sample based on available data for 2014. Data on minutes of use per connection was not available for all countries in SSA nor for all operators in some of these countries so figures in the graph are estimations based on the available data.

Take up of mobile internet also lags behind other countries: the DRC has one of the lowest penetration rates for mobile internet, at 8%, relative to the SSA average of 22%.

Mobile internet and 3G penetration[10] in a selected sample of SSA countries

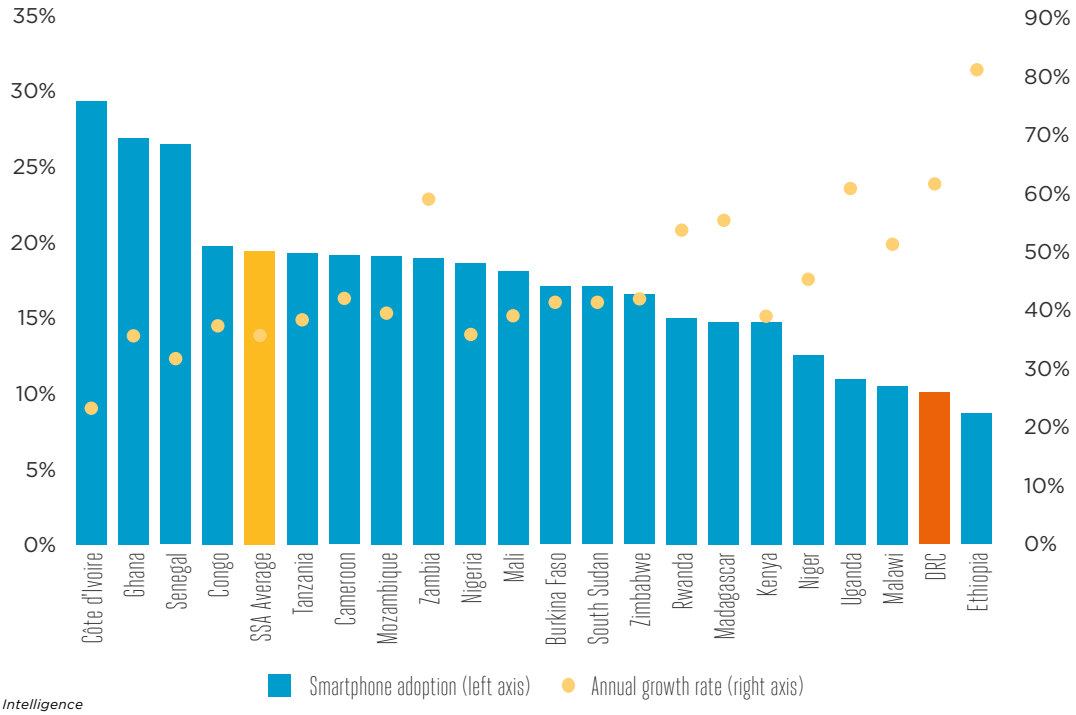


Source: GSMA Intelligence

Figure 9

Smartphone adoption is low but on the rise, which has the potential to support greater mobile internet penetration.

Smartphone adoption in a selected sample of SSA countries



Source: GSMA Intelligence

Figure 10

10. In terms of unique subscribers. Note that GSMA Intelligence defines mobile internet as "any activity that consumes mobile data (i.e. excluding SMS, MMS and cellular voice calls)"; 3G unique subscribers are counted as unique subscribers with 3G services "who have used internet services on their mobile device(s) at the end of the period."

1.2 Mobile services are a key driver of social and economic development

The DRC is one of the poorest countries in the world: in 2014, GDP per capita was US$ 475, ranking 176th in the world. In terms of poverty, in 2012, 64% of the population was living below national poverty lines.

In countries characterised by low levels of economic and social development, increased use of mobile services has the potential to provide significant social and economic advancements. Mobile has proved a transformative technology in countries in SSA, and numerous success stories have emerged: from Kenya's mobile banking M-Pesa to mHealth in Nigeria which helped to reduce the reporting time of Ebola cases during the recent outbreak.

BENEFITS OF INCREASED MOBILE PENETRATION

The availability of mobile services in this region has not only transformed the way consumers and businesses communicate and exchange information but also brings significant productivity improvements to public governance, trade, health and education, thereby playing a key role in the socio-economic development of the region.

GSMA and Deloitte estimated that in 2011, mobile operators and their associated ecosystems had a direct economic impact of US$ 32 billion in SSA, including US$ 12 billion in tax payments; were associated with the creation of 4.4% of the region's GDP when adding the effects of mobile technology on workers' productivity; created more than 3.5 million full-time equivalent (FTE) jobs across both the formal and informal sectors; and supported the development of more than 50 tech hubs, labs, incubators and accelerators.

1. Mobile services promote long-run economic growth

A number of studies have already recognised the economic growth potential of mobile, especially for poorer economies. Analysis by the GSMA has estimated that a 1% increase in mobile penetration could lead to an increase in the GDP growth rate of 0.28%[11], while a study by the World Bank has found that in developing economies, such as the DRC, every 10% increase in broadband subscriber penetration[12] accelerates economic growth by 1.38%[13].

A GSMA report analysing the effects of the mobile sector on economic activity in 25 African countries found that not only did mobile sector revenues comprise 4.1% of GDP in the DRC in 2010 (this has since risen to 4.9% in 2014), but that a hypothetical rise to 100% mobile penetration could increase GDP by up to 7.5%[14]. This is calculated by applying a growth coefficient from the World Bank[15] to the increase needed to reach 100%. It is important to note that this only provides a simple indication of what GDP could be if penetration were 100%, and the report notes that this is a simplification of the challenges in achieving 100% penetration. Although this is a hypothetical case, it provides a guide to the economic benefits of greater mobile penetration.

Additionally, based on data from an ITU report[16] and GDP estimates in current prices from the World Bank, in 2007 and 2008 the telecommunication sector's contribution to GDP was US$ 1.1 billion and US$ 1.2 billion respectively. Moreover, based on these sources in the five year period from 2006 to 2010, operators' contribution to GDP was over US$ 5.2 billion, amounting to 5.9% of GDP each year on average.

The transition from basic mobile telephony to mobile internet is also crucial for economic growth: a 2012 GSMA/Deloitte/Cisco study found that substitution from 2G to 3G connections resulted in significant economic benefits[17]. For a given level of total mobile penetration, a 10% substitution from 2G to 3G penetration was found to increase GDP per capita growth by 0.15 percentage points. The study also found that mobile internet usage supports economic growth and that this impact is larger at higher levels of usage. This means that countries with low usage like the DRC have considerable scope for accelerating growth through increased mobile internet usage.

11. This is based on a study of 40 economies over the period 1996-2011; the report is unpublished but for full details of the methodology, see http://www.gsma.com/publicpolicy/wp-content/uploads/2012/11/gsma-deloitte-impact-mobile-telephony-economic-growth.pdf.
12. The distinction between users and subscribers of telecommunications services should be noted. Users refer to individuals who do not necessarily own or pay for telecommunications services, but who have access to such services through work, family etc. Subscribers, on the other hand, are individuals who pay for subscriptions to such services, to which a number of individuals may have access. Based on ITU (2014), Manual for measuring ICT Access and Use by Households and Individuals.
13. Qiang, C. Z. W., Rossotto, C.M. (2009).
14. GSMA (2011), African Mobile Observatory 2011.
15. Qiang, C. Z. W., Rossotto, C.M. (2009).
16. ITU (June 2013), Taxing telecommunication/ICT services: an overview
17. GSMA/Deloitte/Cisco (2012), What is the impact of mobile telephony on economic growth?

2. Mobile services enhance productivity, innovation and social development

By enabling businesses and government to deliver their services faster, and at a lower cost, mobile services have the potential to increase productivity across the country's economy. Mobile services can reduce transaction costs, making it less costly for Congolese to communicate and conduct everyday business operations, and supporting the expansion of businesses and enterprises. Through wider effects on the economy, this helps to increase living standards in the DRC and improve the country's international competitiveness.

Mobile services also create opportunities for investment, innovation and employment in the mobile sector and in a variety of other jobs that form part of the mobile ecosystem, such as equipment providers, workers in the network engineering and maintenance industry, and providers of related business services.

Mobile can also enable more effective delivery of public services and support social development. In particular, mobile and broadband communication offer an effective means of bringing healthcare and education services to remote and under-served areas, through m-Government initiatives and mobile applications.

3. Mobile services promote digital inclusion and the growth of a knowledge-based economy

Digital inclusion means that the benefits of Information and Communication Technology (ICT) should be available to all, regardless of location or socioeconomic status. Mobile services provide the most cost-effective way of achieving digital inclusion and, by facilitating the exchange of ideas and information, can support a move towards a knowledge-based economy.

The World Bank[18] has stated that the movement towards a knowledge-based economy should be the aim of all governments, as knowledge becomes increasingly crucial to preserving national competitiveness. It identifies four pillars of knowledge-based economies, one of which is information infrastructure, with technology such as mobile phones required to facilitate effective communication and the dissemination and processing of information.

4. Mobile services support development objectives

Through these positive impacts, the mobile industry can support the government in meeting international development objectives. The UN has recently released a set of Global Goals, with the objective to end poverty and hunger, ensure inclusive and equitable economic growth and quality education and achieve economic and gender equality and improve well-being of people of all ages. By supporting Congolese citizens to generate wealth, increase economic growth and make that growth more inclusive and accessible to everyone, mobile can be seen as a key tool to meeting these development objectives and bringing many Congolese out of poverty.

MOBILE APPLICATIONS BRING GROWTH TO ALL

SSA has seen a large increase in the development and use of mobile phone-based applications which are providing users with increased access to services. Specific examples are set below.

Mobile money. While only 4% of the DRC's population have a traditional bank account[19], around 9% have a mobile account which is used to pay bills, receive wages, government transfers or payment for products[20]. Mobile money promotes financial inclusion and access to basic services. This is especially true for those living in rural areas where the high fixed costs of operating a branch and a widely distributed and sparse population mean that traditional sources of financial services may be unable to operate.

Mobile Agribiz. There are a number of ways mobile penetration is driving innovation more specifically in the agricultural sector, which employs around 60% of the total labour force and accounts for 43% of the country's GDP[21]. Services have been developed which provide timely and accurate information, including market prices, as well as micro-insurance that uses camera phone technology to capture policy information, and other services such as real-time herd information, information on farm practices and safety, crop disease prevention and marketing.[22]

In the DRC, Mogribu is a web and SMS mobile application that helps farmers decide when and how to plant crops, and how to select the best crops for a given location using climate and weather data and connects them to the available market. It helps connect farmers to buyers, and helps them to obtain necessary information

18. World Bank (2009), The four pillars of a knowledge-based economy.
19. Buddecomm (2015).
20. World Bank, Global Findex (Global Financial Inclusion Database), available at: http://www.worldbank.org/en/programs/globalfindex.
21. FAO (2013), Democratic Republic of the Congo: BEFS Country Brief, available at: http://www.fao.org/energy/36342-0d2a826525757566a86e626cfa3de1fb0.pdf.
22. Foodtank (2015), Five ways cell phones are changing agriculture in Africa, available at: http://foodtank.com/news/2015/01/five-ways-cell-phones-are-changing-agriculture-in-africa.

(e.g. weather, crop pricing) and acts as useful source for guidance on farming techniques and skill development (e.g. how to plant crops, how to use fertilizers).[23]

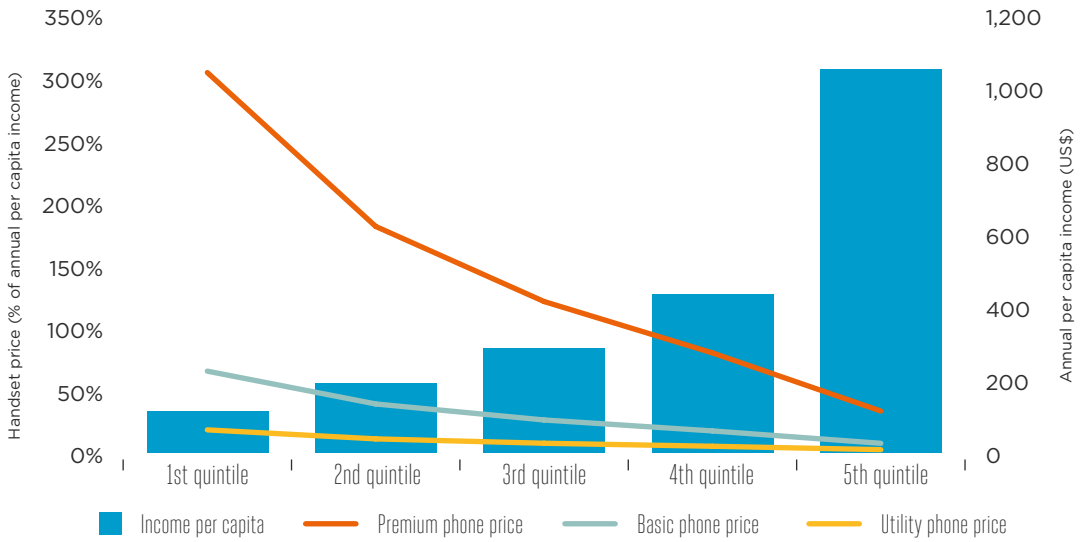
Refugee services. For countries such as the DRC who are recovering from recent periods of instability and conflict, many of the population living within its borders are refugees. In the DRC there are an estimated 120,000 refugees and nearly 2.8 million internally displaced persons.[24] Mobile services are being developed to help reunite refugees with their families. For example, Refugees United, which operates in nine countries including the DRC, has developed a database which it uses to reconnect people who have been separated. Users register with the organisation and then are able to communicate with the people they wish to reconnect with, providing they have also registered with the service. The organisation has partnered with mobile operators to operate more effectively; for example, in the DRC in 2014 efforts were focussed in North Kivu with SMS broadcasts to promote the service.[25]

1.3 Barriers to digital inclusion

Given the low level of development of the mobile sector and the benefits of increasing mobile penetration, what are some of the challenges to further development of the mobile sector? The DRC presents a challenging environment to operate in, partly due to recent conflicts in the region and periods of instability and uncertainty. For mobile operators, this results in an increased risk premium to providing services in the country, which is taken into account in investment decisions. Some of the other barriers include:

Affordability barriers prevent consumers accessing mobile services. The DRC is a low income country and affording a mobile phone is beyond many of the Congolese. Figure 11 shows the affordability of handsets for different income groups in the DRC based on 2014 data across households with different income levels. It highlights the affordability challenge for many Congolese: those in the poorest 20% of households would have to spend 19% of their annual income for even a basic phone and even the richest 20% would have to spend a third of their income to afford a premium phone.

Income distribution and handset affordability



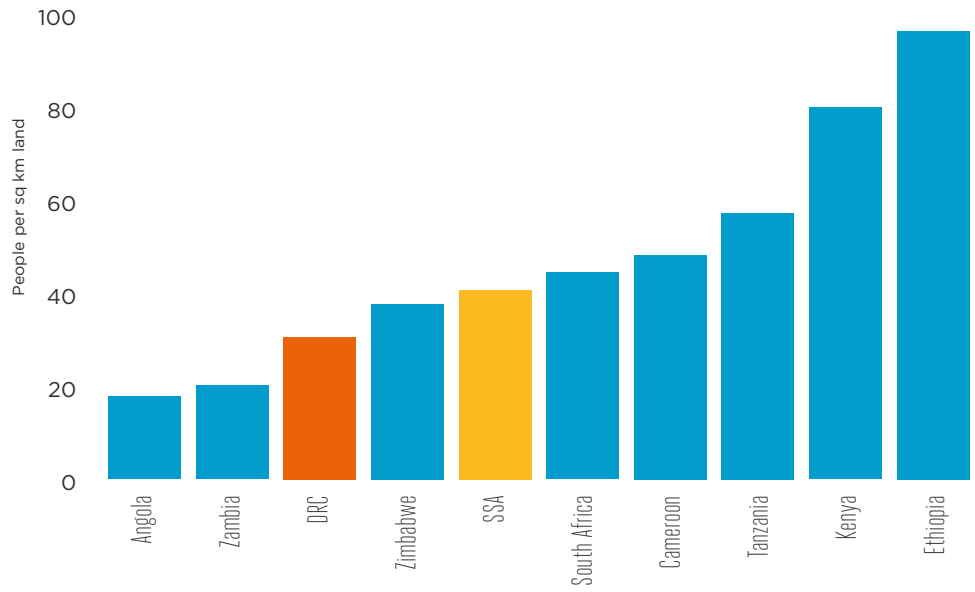
Source: World Bank World Development Indicators, Gartner Mobile Device Forecast, Deloitte analysis. Handset price estimates are based on those for SSA excluding South Africa

Figure 11

23. Venture Capital for Africa, available at: https://vc4africa.biz/ventures/mobile-agribusiness-mogribu/.
24. UNHCR (2015) 2015 UNHCR country operations profile - Democratic Republic of the Congo, available at: http://www.unhcr.org/pages/49e45c366.html.
25. For more details, see: GSMA (2014), GSMA Disaster Response: Reconnecting Refugees Through Mobile; Refugees Unite available at: https://refunite.org/.

A dispersed population requiring investment for adequate network coverage. The land mass of the DRC is 2.3 million square km, the 12th largest in the world and the 2nd largest in SSA behind Sudan, a country with over four times the income per capita than the DRC.[26] The population density in the DRC is 31 people per square km, below the average for SSA at 45. This is much lower than countries like Uganda and Nigeria, with densities of over 190 people per square km.[27]

Population density of selected African countries



Source: World Bank World Development Indicators

Figure 12

More investment in the DRC's network and services is required. The DRC suffers from significant infrastructure challenges, both within the telecommunications sector and more generally. In 2010, the World Bank noted that the DRC was facing "probably the most daunting infrastructure challenge on the African continent"[28]. The most challenging aspect was in relation to power generation, with close to half the existing plants requiring refurbishment and power supply being subject to blackouts. As a result, around 40% of firms in 2010 operated their own backstop generators to avoid power interruptions.

Given the necessity of running base stations and transmission towers 24 hours a day in any region, urban or rural, mobile operators in the DRC suffer particularly from power issues. Analysis of similar issues in Nigeria indicates that the cost of running a base station with generators rather than reliable electricity supply can amount to US$ 2,000 per month, twice the cost than that in more reliable markets such as Ghana, Kenya and Tanzania.[29]

In terms of telecommunications infrastructure[30], the country has not currently linked to international submarine fibre-optic cables, meaning that bandwidth is significantly constrained. However, the 'Central African Backbone' initiative by the World Bank and African Development Bank (costing US$ 215 million and taking ten years to construct) plans to link countries across Central Africa by a fibre optic cable network. The DRC's main cities should be linked in the fifth phase of the project, which began in March 2015.

Mobile operators have devoted increased efforts to improve the mobile network infrastructure. The two largest operators, Vodacom and Airtel, have both recently invested over US$ 1 billion each into their mobile infrastructure[31].

26. World Bank World Development Indicators.
27. GSMA Intelligence (April 2013), Targeting 100M mobile users across the Congolese and Sudanese markets, available at: https://gsmaintelligence.com/research/2013/04/targeting-100m-mobile-users-across-the-congolese-and-sudanese-markets/380/.
28. World Bank (2010), Africa Infrastructure Country Diagnostic Country Report – The Democratic Republic of the Congo's Infrastructure: A Continental Perspective.
29. GSMA (2011), African Mobile Observatory 2011.
30. Buddecomm (2015).
31. Ibid.

The tax and regulatory environment is complex and may pose significant barriers to doing business. One significant example of this is the mandatory paper-based customer registration for consumers[32]. Further, in the most recent Doing Business report by the World Bank[33], the DRC ranked 184th out of 189 countries for doing business. In the case of the telecommunications sector, the number of regulators and revenue authorities demonstrates this point. There are two principal regulatory authorities the *Ministère Des Postes, Télécommunications et Nouvelles Technologies de l'Information et de la Communication* (Ministry of Post, Telecommunications and new ICT) and the *Autorité de Régulation de la Poste et des Télécommunications du Congo* (Regulatory Authority of Congo for Post and Telecommunications), and there is not always clarity on their relevant jurisdictions, potentially adding to uncertainty and compliance burden[34]. Additionally, there are a number of revenue authorities both at the national and regional level to which operators pay taxes, rather than one central body as in other countries[35]. Unification of tax authorities has the potential to provide clarity and address complexity and burden on mobile operators.

The mobile operators have noted that during the current budget discussions taking place in the DRC, new laws have been suggested that may increase the burden for the telecommunication sector. If new mobile-specific taxes are introduced, there is a risk these may raise the tax burden on operators and increase administrative and compliance costs.

In order for the DRC to realise the full benefits of mobile services and to promote sustainable and long-term economic growth, further steps need to be taken to promote digital inclusion and extend access to mobile services to the remainder of the population. There is potential to do so through further consideration of the taxation regime in the country, which can in turn affect affordability of mobile services and the incentives for investment.

1.4 Assessing the impact of taxation on digital inclusion in the DRC

The rest of this report assesses how mobile taxation has an impact on digital inclusion and how addressing mobile-specific taxation could be complementary to the government's current reforms. It utilises an economic model of the DRC mobile sector and economy, suggests a number of options for the government to transition to a tax structure where mobile is taxed equally to other goods, in a way that promotes economic growth and protects the government's tax revenue position in the medium term.

- Section 2 describes the taxes levied on the mobile sector in the DRC, and the implications of these taxes for the mobile sector and the wider economy. It also compares the taxes levied in the DRC with international benchmarks and with best practice on taxation principles as recommended by leading international organisations.

- Section 3 considers effective alternatives for rebalancing taxes on the mobile sector. These policies can support the DRC government's goal of digital and financial inclusion, while increasing economic growth and productivity.

- Section 4 concludes, illustrating the contribution to fiscal stability of the policies presented in Section 3 and presents guidelines to align mobile taxation to standard goods taxation.

- The Appendix describes the economic model of the DRC mobile sector and economy that has been used in the analysis to estimate the impacts of rebalancing mobile sector taxes.

32. Ibid.
33. World Bank (2015), Doing Business 2015, available at: http://www.doingbusiness.org/~/media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB15-Chapters/DB15-Report-Overview.pdf.
34. KPMG (2013), KPMG Africa Region 2012/13: Democratic Republic of the Congo Country Profile, available at: https://www.kpmg.com/Africa/en/KPMG-in-Africa/Documents/2012-2013%20Country%20Profiles/DRC%20Country%20Profile_2012-2013_01.pdf.
35. Operator interviews.

4% of people in the DRC have a traditional bank account whereas 9% use mobile banking

2. Taxation on the mobile sector in the DRC

The DRC mobile sector is subject to a set of taxes levied both on operators and consumers. The extent to which these charges ultimately fall on operators or consumers depends on the type of tax and market conditions. Some taxes and fees may be absorbed by operators in the form of lower profits, whilst others may be passed through to consumers through higher prices, or there may be a combination of the two.

Mobile operators' contribution to the public sector in terms of tax revenue has historically been very high; in 2008 they contributed more than US$ 160 million to the government budget, amounting to over 37% of the revenue collected by the national tax collection agency[36].

This section reviews the taxes applied to mobile consumers and operators in the DRC, focusing on those that are mobile-specific, i.e. those which do not apply to other goods and services in the economy. It also compares the mobile taxation system with similar countries and with other DRC industries.

2.1 Taxes on mobile services in the DRC

There are a number of taxes that apply to the mobile sector in the DRC, and these taxes are enforced and paid to a range of both national and regional public authorities, adding to the compliance burden.

Figure 13 summarises the main taxes that currently apply to the mobile sector with focus on those that are specific to the sector as well as those that are most important in terms of sale of the end product/service (e.g. VAT).

36. This does not include tax collection by other bodies and local authorities. Based on Williams, Mayer and Minges (2011), Africa's ICT Infrastructure: Building on the Mobile Revolution, World Bank.

Table summarising the key taxes on the mobile sector

Consumer taxes		
Payment base	**Type**	**Tax rate**
Devices and SIM cards	VAT	16%
Calls, SMS and Mobile broadband	VAT	16%
	★ Excise duty	10%
Imported Handsets	★ Customs duty	27.6%
Game prizes	★ Game tax	10%
Operator taxes		
Payment type and base	**Type**	**Tax rate**
Profits	Corporation tax	35% (1% of turnover if loss making)
Regulatory fees	★ Annual spectrum fee on GSM, microwave and internet	US$ 52,500/MHz for GSM, US$ 6,000/MHz for microwave, US$ 3,000/MHz for internet
	★ One-time licence fee	US$ 15,000,000
GSM and internet revenues	★ Regulatory revenue fee	2%
Interconnection revenues	★ Local interconnection fee	US$ 0.00434/minute
	★ International interconnection fee	US$ 0.08/minute
Numbering	★ Numbering fee	US$ 0.45/standard number
Imported network equipment	Customs duty	21.8% - 39.2%

★ Mobile specific tax

Source: Deloitte research, GSMA and operators

Figure 13

VAT ON MOBILE DEVICES AND SERVICES

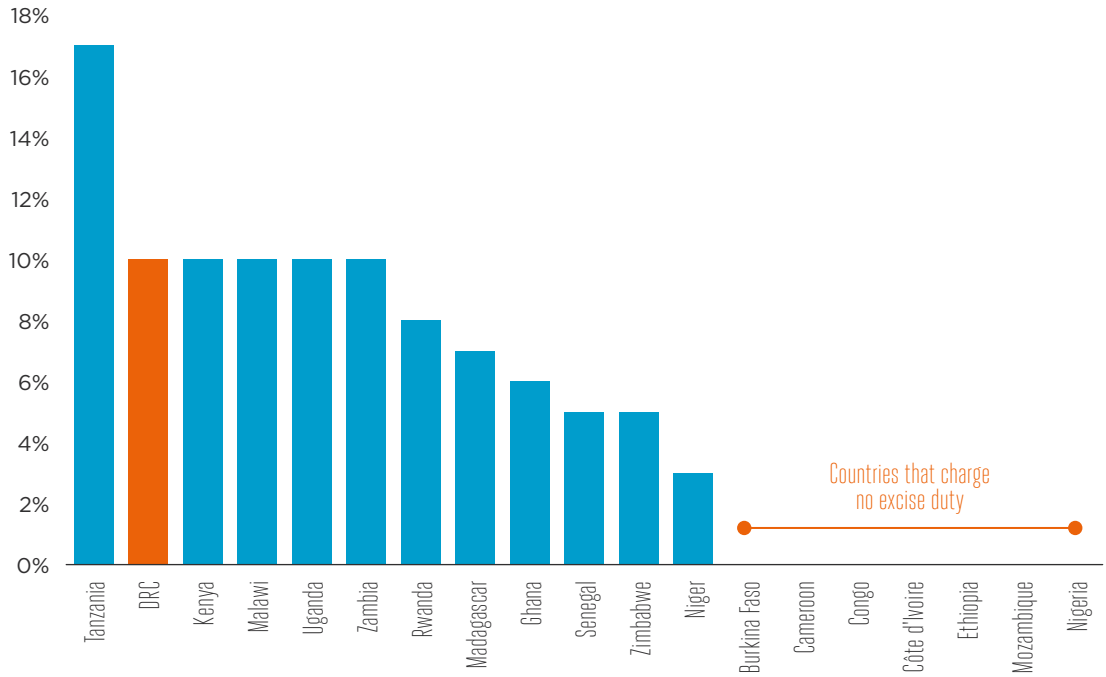
VAT applies to the revenue from the sale of all goods and services not subject to special treatment, and the rate currently stands at 16%. The VAT was introduced in 2012 to replace local turnover taxes.

THE EXCISE TAX ON MOBILE SERVICES

In addition to VAT, a 10% ad valorem tax also applies to revenue from mobile services provided to subscribers, i.e. calls, SMS and mobile internet. This tax was introduced in April 2009. A 2011 World Bank report[37] states that due to the introduction of the excise tax, "return on capital in the sector has fallen and operators have cut back on investment".

According to data collected for GSMA's Digital inclusion and mobile sector taxation report, out of 29 SSA countries surveyed, 14 apply excise taxes to mobile services. Figure 14 shows how excise duties compare over the selected sample of SSA countries: the DRC is among a group of countries levying a 10% excise tax on calls, SMS and mobile internet, Tanzania has the highest rate at 17% and there are seven countries that do not charge any excise duty.

Excise taxes on mobile services in a selected sample of SSA countries



Source: Deloitte (2014), Mobile Tax Survey

Figure 14

Through this excise tax, mobile is treated differently from standard goods and services. In particular, excise taxes are typically applied on those goods with negative externalities, such as tobacco and alcohol, while mobile actually has positive benefits. Such a tax could discourage uptake and use of mobile services, and detract from the benefits of greater digital inclusion.

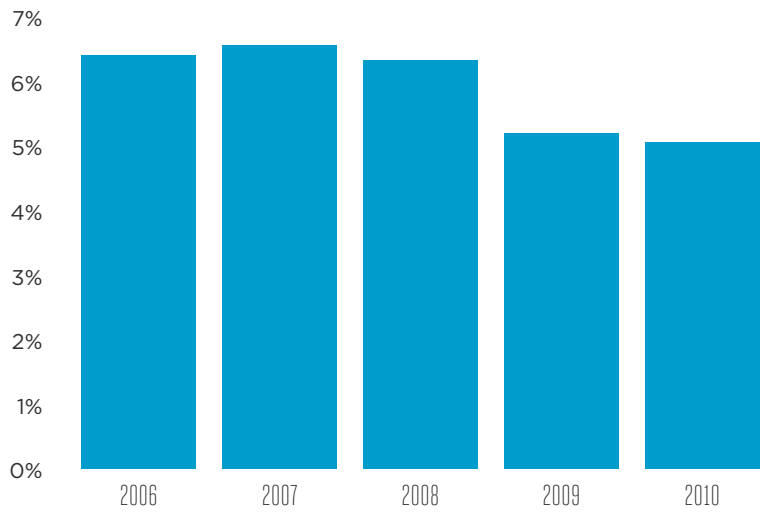
In addition, operators noted that an excise duty charged on the full price of items offered with discount or as part of a promotion limits their ability to offer services to low income consumers and limits up take of mobile services.

Furthermore, a recent ITU report[38] shows how the telecommunication sector's contribution to GDP fell steadily between 2006 and 2010, as shown in Figure 15. In addition, the report draws the following conclusion, that "a relatively sharper drop [in GDP]... was observed between 2008 and 2009, which corresponds to the period when

37. Williams, Mayer and Minges (2011), Africa's ICT Infrastructure: Building on the Mobile Revolution, World Bank.
38. ITU (June 2013), Taxing telecommunication/ICT services: an overview.

many sector specific taxes were either introduced or increased. The DRC's current mobile penetration rate may be adversely affected by taxation." Although the ITU does not explain the basis upon which this conclusion is reached, this illustrates that telecommunication sector experts expect sector specific taxes to limit growth in mobile penetration, with implications for the development of the broader economy.

Telecommunication's contribution to GDP in the DRC



Source: ITU (June 2013), Taxing telecommunication/ICT services: an overview

Figure 15

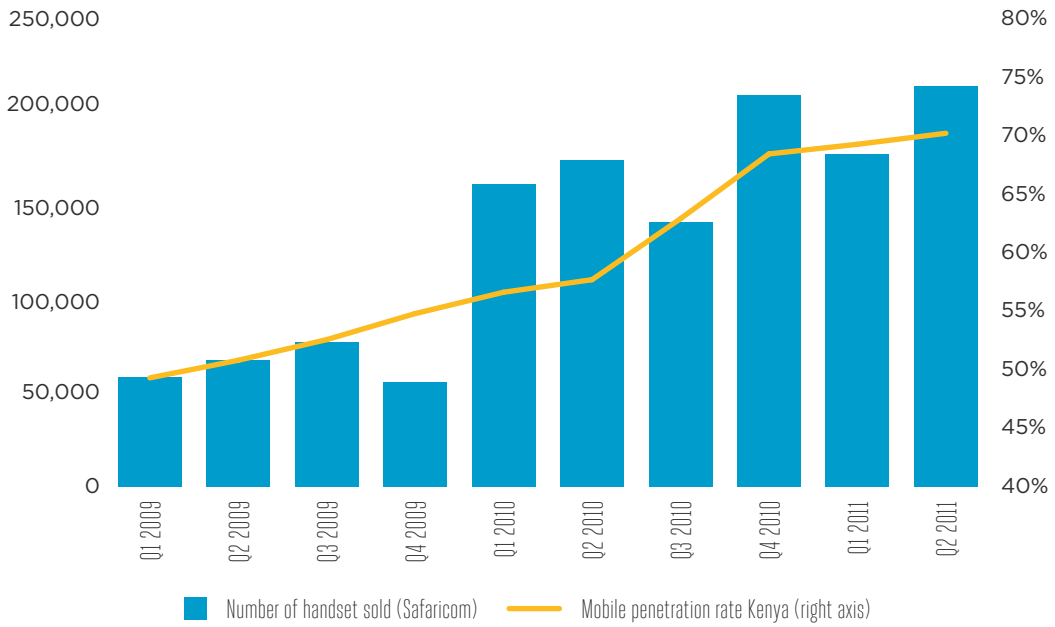
CUSTOMS DUTY ON IMPORTED HANDSETS

Any imported handsets are subject to a customs duty of 27.6%, calculated on the cost, insurance and freight value of the handsets. Taxes on handsets lead to higher device acquisition costs for DRC consumers, affecting mobile penetration and usage. This is particularly likely to negatively impact poorer consumers, for whom device cost is a higher portion of income.

African consumers are very sensitive to the price of handsets and the cost of access has been widely recognised as a barrier to the adoption of mobile technology. Recognising this, the Kenyan government in 2009 decided to implement a series of tax exemptions on handsets in Kenya, e.g. by removing the 16% VAT rate on mobile handsets. In the three years following, the VAT reduction contributed to an increase in handset sales of 200%, outpacing growth elsewhere in Africa. This increase contributed to increase penetration from 50% to 70%, above the 63% average across Africa.

Combined with wider market price reductions, the VAT exemption helped to increase access to a wide range of mobile services, with mobile usage increasing by 113%. Over the same period, the contribution of mobile telephony to the Kenyan economy grew by nearly 250%, while mobile-related employment increased by 67%.

Increase in mobile penetration and handset sales following removal of VAT in Kenya 2009 to 2011



Source: GSMA (2012), Sub-Saharan Africa Mobile Observatory 2012

Figure 16

GAME TAX

Some operators provide access to mobile games that offer prizes. In order provide a game, mobile operators must pay an authorisation charge of US$ 2,000 per game and then a 10% ad valorem tax on prizes given out.

REGULATORY FEES

Regulatory fees include a number of payments, among the largest of which is an annual regulatory payment as part of the licence arrangement of 2% charged on revenues from the provision of GSM and internet services. These amounted to around CDF 19 billion or US$ 21 million in 2014. According to economic theory, taxes on revenue may distort the market and lead to under-provision of a good or service. Mobile operators cannot itemise such taxes in prices or receipts. The net effect of this is that mobile operators must either suffer a consistent reduction in their profitability or pass these taxes through to consumers in a non-transparent way. International comparisons of tax regimes reveal that such taxes and fees are atypical in other markets such as the United States or Europe. Such taxes reduce incentives for operators to invest and encourage them to instead profit maximise over older networks.

In order to obtain a GSM 900/1800 licence in the first place a one-off fee of $15 million is paid; most recently 3G licences were sold for this price in 2012[39].

SPECTRUM FEES

Spectrum fees are charged on the frequencies allocated to each operator at rates determined by the specific technology, these fees include US$ 52,500/MHz per year for GSM frequencies and US$ 6,000/MHz for microwave frequencies[40], in Congolese Francs these equal approximately CDF 48.3 million/MHz and CDF 5.5 million/MHz respectively. The annual spectrum fee payments amount to nearly CDF 16 billion, or US$ 17 million.

39. Buddecomm (2015).
40. Operator data.

INTERCONNECTION FEES

Local Interconnection fee

The local interconnection fee is charged when calls or messages are transmitted from one operator to another and are currently charged at US$ 0.00434 per local outgoing minute, approximately CDF 4 per minute.

International Interconnection fee

The international interconnection fee is charged on operators handling international inbound termination. The current fee is US$ 0.08 per incoming minute for an international call, approximately CDF 74 per minute, which was increased in 2013 from US$ 0.025 or CDF 23 per minute[41]. For operators that reported international interconnection fees it was the largest amount paid behind VAT and excise duty.[42]

International interconnection fees have a significant impact on development of the mobile sector both for operators and consumers. A report from the GSMA concerning international interconnection fees estimates that the government in the DRC could potentially have lost up to US$ 2.6 million in government revenue between June 2013 and March 2014 from lower corporate tax revenues from mobile operators and from businesses trading with other countries also charging interconnection fees. It was also estimated that costs for African businesses could have been up to US$ 2.4 million, and economic losses from lower remittances might have been up to US$ 200,000. There are also negative impacts from lower regional integration.[43]

NUMBERING FEE

The numbering fee is charged at US$ 0.45 per standard number, approximately CDF 414, and is charged annually on the numbers that are registered to an operator. Some operators are also charged for shorter numbers (i.e. phone numbers with fewer digits) registered to them and these are charged at a higher price, although there are not many such instances.

ENVIRONMENTAL TAXES

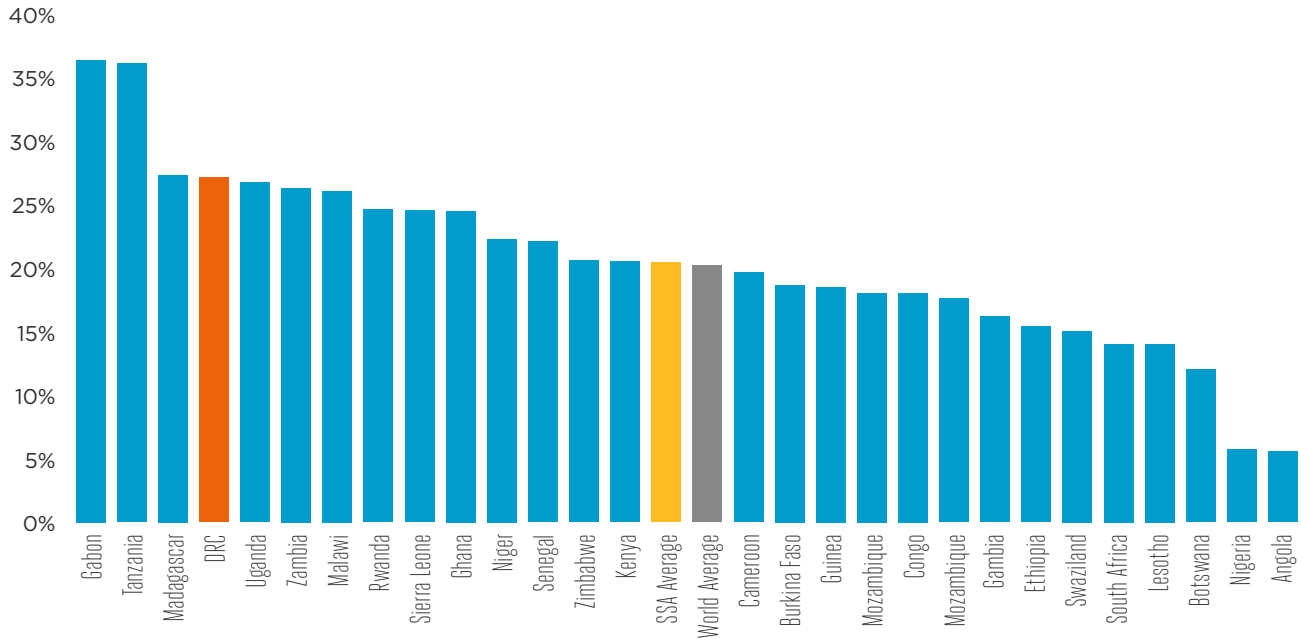
Mobile operators are also subject to other taxes that apply to standard goods and services, including environmental taxes. These can create a significant impact on industries, such as the mobile sector, which rely on generators to power sites such as base stations, particularly in more rural regions without sufficient infrastructure. Environment taxes are levied on generators (per kilovolt-ampere) and on batteries (per ampere hour) and vary by locality. Operators require generators and batteries due to the lack of infrastructure in many rural parts of the country and, although taxes are needed to account for polluting effects, it makes mobile service provision to Congolese living in rural areas more expensive. In addition, operators may have to pay a pollution tax at the regional level, along with taxes in relation to bio-degradable substances and radioactivity.

2.2 The burden on the mobile sector

The mobile sector in 2014 paid US$ 454 million in taxes and regulatory fees, which amounts to 27% of mobile revenues and 1.3% of GDP[44]. In addition consumer taxes are high in the DRC compared to other countries. Figure 17 compares the consumer taxes (such as VAT, excise duty and customs duty) as a percentage of Total Cost of Mobile Ownership (TCMO)[45] across countries. TCMO is a measure of the average cost of owning a mobile phone comprising the cost associated with usage such as calls and SMS.

41. GSMA (September 2014), Surtaxes on International Incoming Traffic in Africa.
42. Operator data.
43. GSMA (September 2014).
44. Operator and World Bank data with Deloitte analysis. Note taxes and regulatory fees include all taxes and fees described above.
45. For details on how TCMO is calculated see GSMA (2015), Digital Inclusion and Mobile Sector Taxation, available at: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/06/Digital-Inclusion-Mobile-Sector-Taxation-2015.pdf.

Consumer taxes as a percentage of TCMO across SSA countries for which data was available



Source: Data from GSMA (2015), Digital Inclusion and Mobile Taxation, updated with data for the DRC, Deloitte Analysis. Note that the World Average refers to the average across the 110 countries included in the survey, the SSA Average refers to the average across the 28 SSA countries for which data is available

Figure 17

Out of the 28 countries for which data is available in SSA the DRC ranks as fourth highest in terms of consumer taxes as a percentage of TCMO with 27% compared to the SSA and World averages both at 20%.

Operators have reported a number of other tax-related issues:

- At present, operators are unable to deduct VAT on fuel consumption, unlike the mining and transport sectors. Fuel consumption is necessary for operators to provide services in rural areas where electricity is unreliable or lacking, and the VAT charge may increase the cost of providing coverage to these areas.

- Operators reported that payments made on international interconnect revenue may contravene International Telecommunication Regulations article 6.1.3[46], which states that international interconnection taxes can only be levied on revenue from services billed to customers from the same country.

- The current budget discussions taking place in the DRC may result in the implementation of new laws[47] imposing higher taxes specifically on the telecommunication sector. Under discussion are additional charges on international and domestic calls, as well as an additional tax on net profits specific to the telecommunications, banking and mining sectors. Additionally, financial transaction charges may limit the spread of mobile money, negatively affecting increased financial as well as digital inclusion.

46. Referred to as the Melbourne Agreement or Convention, see: https://www.itu.int/osg/csd/wtpf/wtpf2009/documents/ITU_ITRs_88.pdf
47. Proposition dated September 2015, *Proposition de loi modifiant et complétant la Loi – cadre n° 14/004 du 14 février 2014 de l'enseignement national*, article 169.

Consumer taxes make up 27% of TCMO, the fourth highest in Sub-Saharan Africa

2.3 Best practice in taxation policy

In a country with the DRC's levels of poverty, an effective tax policy has to balance a number of potentially competing factors. These include the government's revenue needs, supporting key sectors and the practicalities of enforcement and collection, as well as the desire to minimise any detrimental impact on the wider economy. Consequently, tax policy frequently must strike a balance between the theoretically correct response and one that recognises the practicalities of taxation in a market[48].

There are a number of principles that are generally recognised as contributing to an effective tax system and if applied in the DRC, these principles have the potential to expand investment in the mobile sector and lead to significant economic growth and increased tax revenues for the government. The following principles have been indicated by organisations such as the IMF:

1. **In general, taxation should be broad-based:** Taxation alters incentives for production and consumption, and so economic distortions will generally be minimised where the burden of taxation is spread evenly across the economy. In practice this equates to adopting broadly defined bases for taxation, limiting rate variations and effectively enforcing tax compliance.

2. **Taxes should account for sector and product externalities:** The case for taxation to address negative externalities[49] (such as those arising from tobacco consumption) is recognised. The same logic also applies to sectors and products with positive externalities. Taxation policy should encourage sectors, such as mobile, that create positive externalities in the wider economy. Higher taxation on mobile may discourage consumption of mobile services and prevent the realisation of the positive spillovers from the sector.

3. **The tax and regulatory system should be simple, easily understandable and enforceable:** Uncertainty and lack of transparency over taxation systems and liabilities may deter investors and are also likely to increase enforcement costs for government.

4. **Dynamic incentives for the operators should be unaffected:** Taxation should not disincentivise efficient investment or competition in the ICT sector. In situations where the tax system does provide disincentives, tax revenue could be significantly reduced in the long run.

5. In addition, it is widely accepted that **taxes should be equitable, and that the burden of taxation should not fall disproportionately on the poorer members of society.**

6. **Spectrum prices and other regulatory fees should cover the cost of spectrum management and reflect the rent associated with this scarce resource.** At the same time, they should maintain the incentives to invest, by appropriately incorporating all costs incurred during the duration of a licence, including taxes[50].

48. IMF (2001), Tax policy for developing countries.
49. An externality refers to an impact on the wider economy that is not accounted for by the consumer purchasing the good. For example, consumers of tobacco create an additional cost for others through second-hand smoke, but do not take into account this impact when choosing whether to smoke.
50. ITU (2014), ICT regulation toolkit, available at: http://www.ictregulationtoolkit.org.

These principles are intended to minimise the inefficiencies associated with taxation and regulatory fees and the distortive impacts that they may have on the wider economy. Table 1 below summarises how the taxes and fees levied in the DRC align with these principles.

Alignment of taxes and regulatory fees on the mobile sector in the DRC with the principles of taxation

Tax	Broad-based	Accounts for externalities	Transparent and enforceable	Incentives for competition and investment	Equitable (not regressive)
VAT	✓	✗	✓	✓	✗
Excise Duty	✗	✗	✓	✗	✗
Customs Duty	✓	✗	✗	✗	✗
Game tax	✗	✓	✓	✓	✓
Corporation tax	✓	✗	✓	✓	✓
Annual spectrum fee	✗	✓	✓	✗	✓
One-time licence fee	✗	✓	✓	✗	✓
Regulatory revenue fee	✗	✗	✓	✗	✗
Local interconnection tax	✗	✗	✓	✓	✗
International interconnection tax	✗	✗	✓	✗	✗
Numbering fee	✗	✗	✓	✗	✓
Environmental taxes	✗	✓	✗	✗	✓
Local taxes and fees	✗	✗	✗	✗	✗

Source: Deloitte analysis

Table 1

As shown in Table 1, many of the taxes levied on the mobile sector in the DRC do not appear to fully align with these key principles of efficient taxation, which has ramifications for the development of the sector and the wider economy. In particular, those taxes that are mobile-specific have the highest negative impact and lack of alignment with the established principles of taxation:

Mobile-specific taxes such as the excise duty increase the barriers to access and hit the poorest consumers hardest: Congolese mobile consumers are subject to significant mobile-specific taxes, in the form of the excise duty on calls, SMS and mobile broadband bundles. This tax is not broad-based, as it is specific to mobile services and as such may create distortions. By increasing the final price of mobile services it creates a barrier to affordability and to mobile access. This barrier is greater for low income consumers and therefore risks excluding them from the benefits of mobile and the internet.

All mobile-specific taxes and fees fail to account for positive externalities and discourage consumption: In addition to excise duty, mobile is subject to a number of sector-specific regulatory fees, including numbering fees. Mobile has positive impacts in the wider economy through positive spillover effects and facilitation of innovation and productivity in other sectors such as agriculture, healthcare and education. Taxing mobile in a disproportionate manner could be taken as a signal that the government wishes to discourage rather than encourage consumption.

High spectrum and other regulatory fees could distort operators' investment decisions: regulatory fees represent a significant part of operators' tax and fee payments and are a key determinant of investment in the sector. They could reduce incentives to invest and create distortions across industries. Moreover, fees that are subject to frequent changes increase uncertainty and discourage investment both domestically and internationally. Efficient, equitable and stable pricing of spectrum and licence fees could incentivise the development of new technologies and encourage mobile operators to invest in new spectrum and network roll-out, while covering the cost of spectrum management, ensuring efficient use of spectrum and providing a source of revenue to the government.[51]

The potential inefficiencies created by these various mobile taxation issues may not only limit the development of the mobile sector, but also hinder economic growth and the realisation of the positive externalities created by mobile services. In the medium term, the DRC government has the potential to generate more tax revenue by transitioning towards a more equitable and balanced taxation structure that treats mobile equally to other industries.

51. For additional information on the importance of spectrum management and best practice in spectrum pricing see GSMA (2011), Africa Mobile Observatory 2011.

3. Economic impacts of reforming mobile taxation in the DRC

This section discusses the impacts of reforming taxation through three tax policy changes, using a quantitative model of the mobile sector and its impact on the wider economy in the DRC. After discussions with the DRC operators, the quantitative impacts of the following potential tax reform options are estimated:

Scenario 1: Reduction of the excise tax on mobile services from 10% to 5%.
Scenario 2: Elimination of the excise tax on mobile services.
Scenario 3: Halving the annual standard numbering fees on mobile operators' connection base.

To illustrate the impacts of these policy changes if they were to be enacted in 2016, the analysis focuses on the state of the sector and the economy in general in 2020. The comparisons made refer to the difference between estimates for 2020 after the policy is enacted and estimates for 2020 in the counterfactual base case scenario where no policy change is made. The analysis considers the impact of each policy change separately; this analysis does not consider combinations of policy changes and the interactions between them. Nor does it consider any other potential changes to taxes, including those that are currently being discussed for the national budget. The base case to which the scenarios are compared considers only that the present taxes continue into the future.

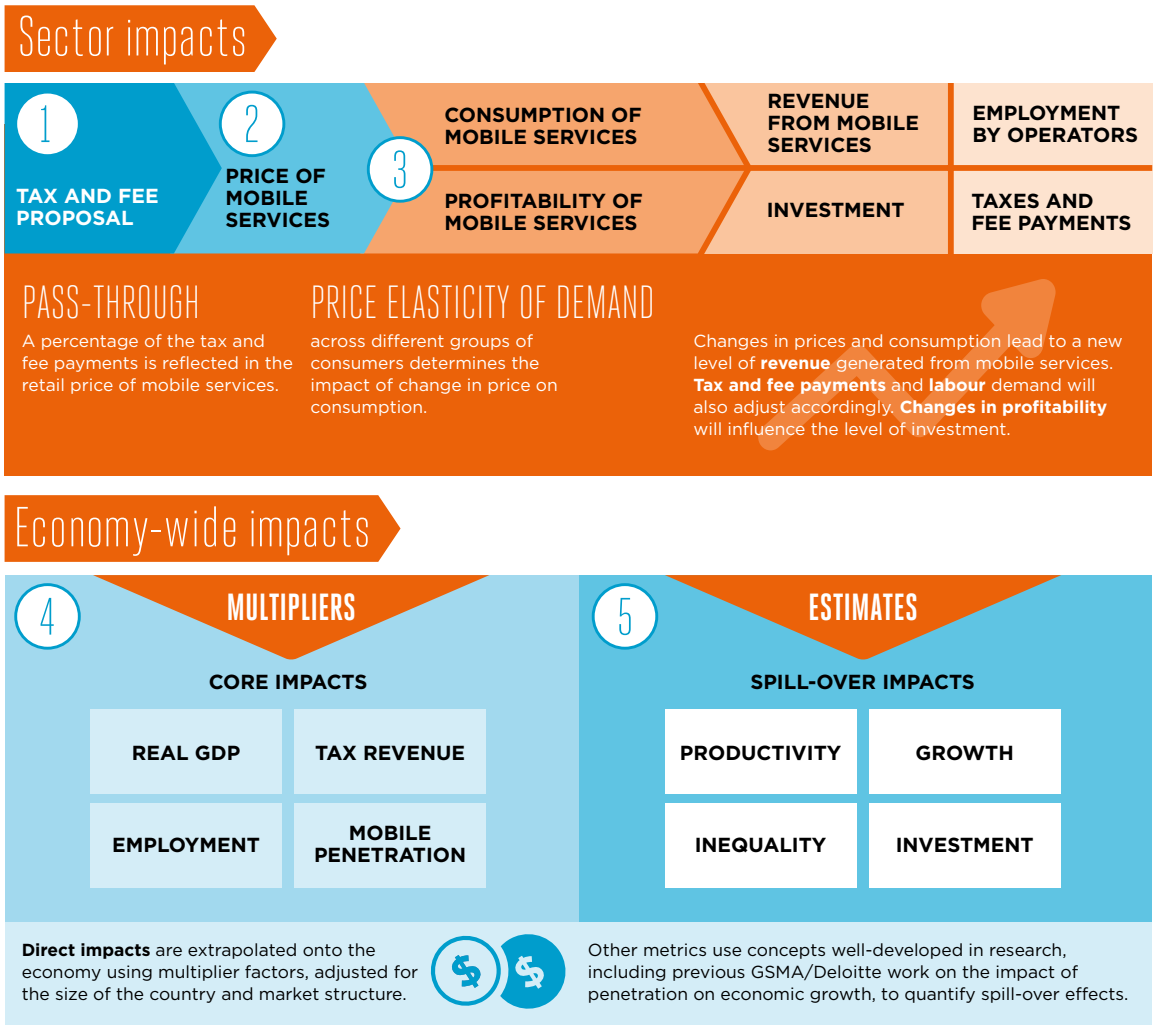
To put the results in context, it is important to consider that the mobile sector in the DRC is forecast by GSMA Intelligence to undergo a high level of growth in terms of connections in any event to the end of the decade. In 2020, in the base case where no policy change takes place, the number of connections is forecast to be higher by 19.5 million, an increase of 42% on 2015. Additionally the real economy is forecast to grow at an average annual growth rate of 6.7%.

3.1 How mobile taxation in the DRC impacts the economy

To estimate the quantitative impacts of tax reform, an economic model of the DRC economy and mobile sector was constructed, using sector-specific data from the GSMA and mobile operators in the DRC, together with macroeconomic data from the IMF and World Bank. This allows the model to represent both the mobile sector and its impacts on the economy as a whole. This approach also enables comparison between a base case that uses current projections for the sector and several tax reduction scenarios; other potential impacts on the sector that may arise from the government's current reform programme are not explicitly modelled but may have been considered in projections by the GSMA or third party sources and would, if considered, be taken into account in the base case.

Figure 18 illustrates the impacts of tax reform on key economic and sector variables.

Schematics for modelling the economic impacts of mobile taxation changes



Source: Deloitte analysis

Figure 18

The modelling involves several steps which encompass the impacts outlined in the figure above:

1 The levies, fees, and royalties applied to the mobile sector are reflected in the retail prices mobile operators charge for using their services. A reduction of such payments to government will lead to a reduction in the retail price of the mobile service according to an assumed pass-through rate. A pass-through rate represents what percentage of the levy and fee payments are reflected in the retail price of mobile services.

2 The price of mobile services determines the demand and therefore the aggregate consumption of mobile services. The price elasticity of demand describes the responsiveness of demand to a change in the price and is calculated as the percentage change in demand resulting from a given percentage change in price.

3 Changes in the level of consumption of mobile services lead to a new level of revenue generated by operators, which changes the level of taxes and fee payments and labour demand accordingly.

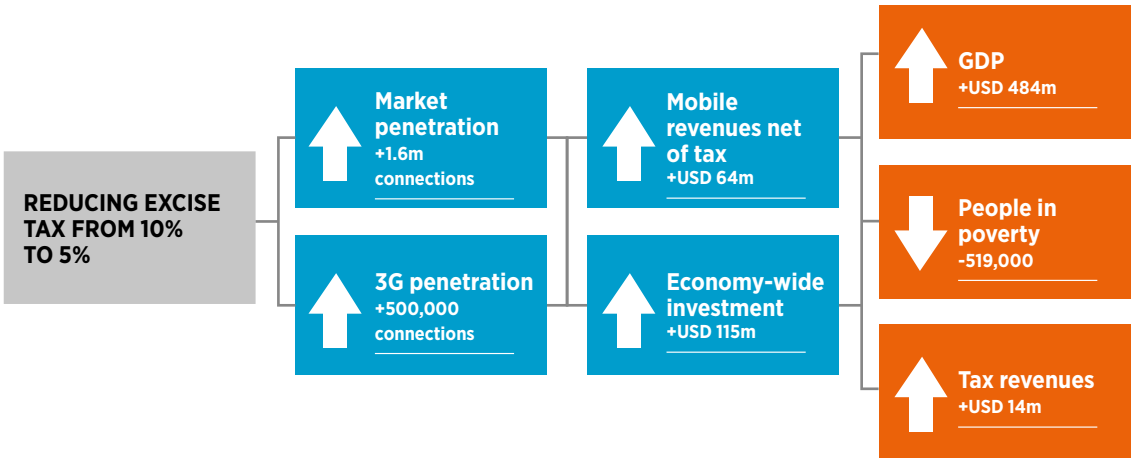
4 These changes to the mobile sector lead to direct impacts on value-add and employment and, through spill over effects, on the wider economy, in particular on real GDP, tax revenues, employment and investment.

5 An elasticity determines the impact of a change in mobile penetration on GDP growth. Multipliers are assumed which allow changes in mobile sector employment to affect the wider Mexican labour force. Productivity is calculated using the total factor productivity impact, described in the appendix.

3.2 Reducing the excise tax on mobile services from 10% to 5%

The excise tax is charged on mobile services including SMS, calls and mobile internet and increases the effective sales tax on products and services. This affects both the penetration of mobile services on the consumer side, as products and services are more expensive to the extent that the taxes are passed on, and also the incentive to provide and invest in services on the operator side, as the return they receive is reduced to the extent that the taxes are absorbed by the operator.

Potential economic impact in 2020, relative to the base case scenario, of reducing the excise tax on mobile related products



Source: Deloitte analysis based on operator, GSMA intelligence database, IMF and World Bank data

Figure 19

- Reducing the excise tax from 10% to 5% has the potential to increase the number of connections in 2020 by 1.6 million: this means that in addition to the 3.9 million connections forecast to be added on average every year for the next five years, reducing the excise tax will add 320,000 each year on average. In particular, 3G penetration may be 3% higher relative to the base case with an additional 500,000 connections.

- The increased mobile penetration in the DRC has the potential to increase mobile sector revenues by US$ 64 million and could increase the country's productivity by over 0.6%.

- In 2020, due to the direct and indirect impacts of increased mobile penetration, economic output measured by real GDP is estimated to potentially be 0.9% larger. Additionally the reduction in the excise tax could increase total economic output over the period 2016-2020 by up to US$ 1.5 billion, resulting in an average annual growth rate of 6.9%, compared to 6.7% without the policy change.

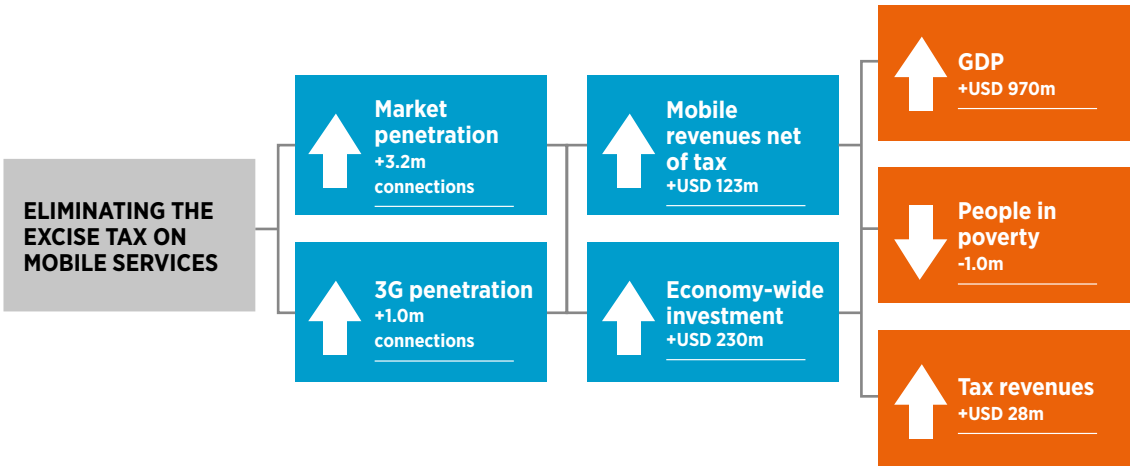
- The increased penetration and resulting increase in economic activity may increase investment by US$ 167 million in 2020 and could add an extra 4,000 jobs to the DRC economy over the period 2016-2020. In addition, using poverty estimates from the World Bank, the number of people living below national poverty lines[52] could potentially shrink by an additional 520,000 people by 2020.

- In addition to the sector-specific and macroeconomic benefits, the government could also see an increase in tax revenues. Despite an initial fall in tax revenues because of the reduction of the excise tax, the government could potentially achieve tax neutrality by 2019 after which tax revenues would be higher than without the policy change.

3.3 Eliminating the excise tax on mobile services

Elimination of the excise tax would significantly reduce the tax burden placed on the mobile sector, and support the realisation of the benefits of increased mobile use and digital inclusion more widely. As discussed in section 2.1, there are already a number of SSA countries that do not charge excise duties on any mobile products and services. Due to the large change the estimated impacts are necessarily large, as shown in Figure 20.

Potential economic impact in 2020, relative to the base case scenario, of eliminating the excise tax on mobile related products



Source: Deloitte analysis based on operator, GSMA intelligence database, IMF and World Bank data

Figure 20

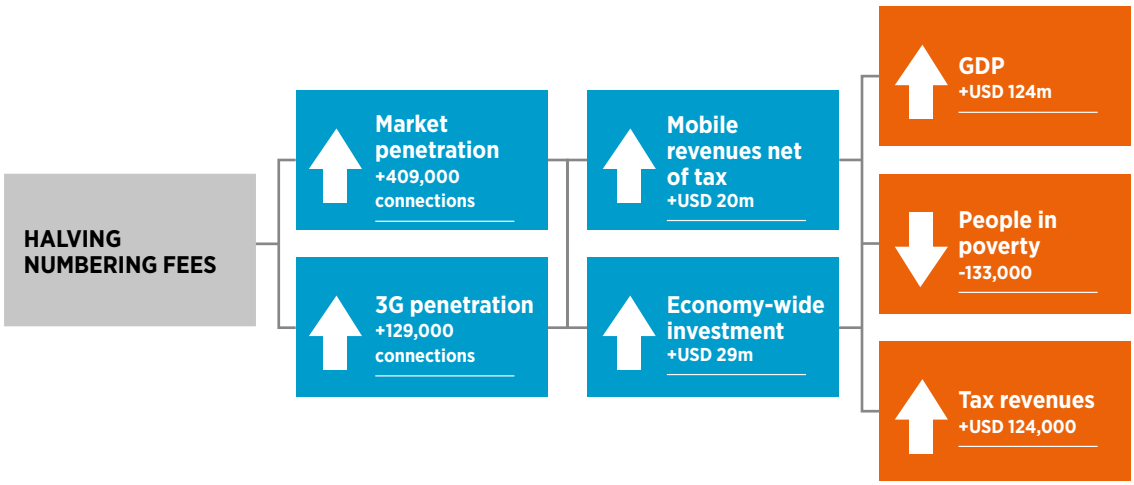
52. National poverty lines differ from the widely recognised threshold of less than $1.25 a day in that they are adjusted based on country-specific characteristics. For more details see: http://data.worldbank.org/indicator/SI.POV.NAHC

- On top of the 19.5 million connections forecast to be added between 2015 and 2020 under the counterfactual base case, eliminating the excise tax may add an extra 3.2 million connections, or an extra 4.9% to the total market. 1.0 million of these could be 3G, which may increase the total number of 3G connections by 4.2%.
- This increase in penetration could increase mobile sector revenues by US$ 123 million and could increase productivity in the whole economy by 1.3%.
- Real GDP in 2020 would be 1.9% higher in 2020 compared to the base case where no policy change takes place. In total for the period 2016-2020 eliminating the excise tax could potentially add an additional US$ 3.0 billion to economic output. As a result, the average annual growth rate may reach 7.1%.
- Investment in the DRC economy has the potential to be US$ 230 million higher in 2020 and the number of people employed 8,000 higher. Furthermore, an extra 1.0 million people could be lifted out of poverty by 2020.
- Moreover, government tax revenues in 2020 could potentially be higher by US$ 28 million, an increase of 0.3%. The initial reduction in tax revenues from eliminating the tax may quickly be recovered and tax neutrality achieved in 2019, from which time the tax revenues have the potential to be higher compared to the counterfactual scenario with no policy change.

3.4 Halving the annual standard numbering fees

Annual numbering fees charged on the connections registered to an operator's network also present a significant liability to mobile operators, and a reduction in the cost of connections to mobile operators could be passed through to consumers in the form of lower prices, making services more affordable. The results of this tax reform are shown in Figure 21.

Potential economic impact in 2020, relative to the base case scenario, of halving the annual standard numbering fees



Source: Deloitte analysis based on operator, GSMA intelligence database, IMF and World Bank data

Figure 21

- Reducing the standard numbering fees by half has the potential to increase connections in 2020 by 409,000, an extra 2.1% on top of the increase in connections already forecast. 129,000 of these could be 3G connections.
- The tax reduction could boost mobile sector revenues by US$ 20 million and productivity could rise by 0.2%.
- Real GDP may be US$ 124 million higher in 2020 compared to what it would be with no policy change. The cumulative output for 2016-2020 could increase by US$ 382 million.
- With this policy, an extra US$ 29 million could potentially be added to 2020 investment and an extra 1,000 jobs created in the economy. Furthermore, 133,000 Congolese may be lifted out of poverty.
- In spite of the initial reduction in tax revenues immediately after the policy change, tax revenues in 2020 could potentially be US$ 124,000 higher than without the change. 2020 is also when tax neutrality could be reached marking the point after which tax revenues could be higher than the counterfactual scenario.

Eliminating the excise tax could potentially lead to an extra 3.2 million connections in 2020 and increase GDP by US$ 3 billion for the period 2016-2020

4. Mobile Taxation in the DRC: An Agenda for Reform

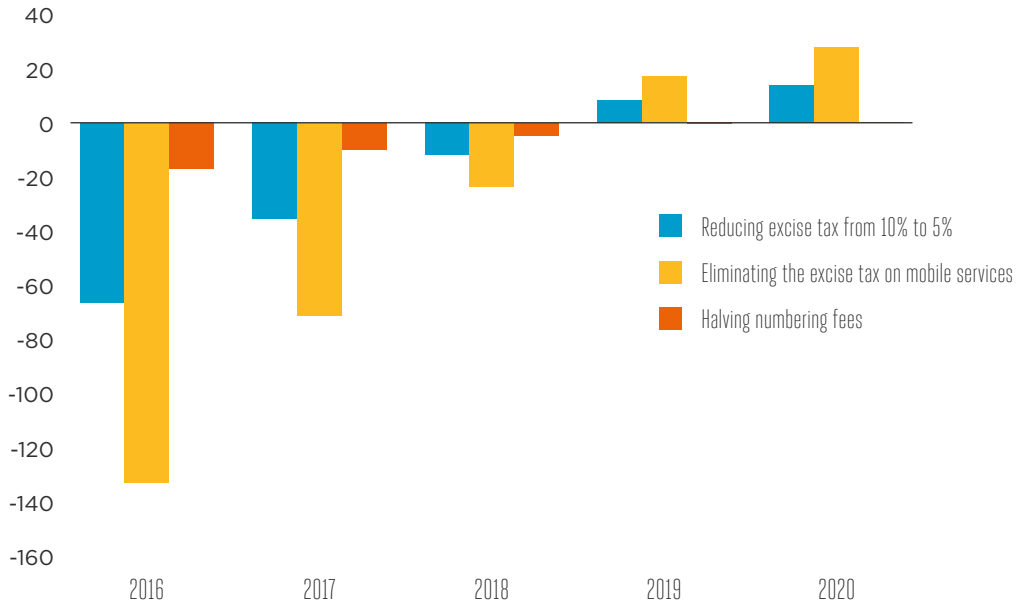
4.1 Contribution to fiscal stability

Total taxes and fees on mobile consumers and operators in the DRC add to the cost of owning and using a phone and investing in mobile networks. Reducing the level of taxation on the mobile sector may impact government revenues in the short term. However, by increasing mobile penetration and promoting economic growth, reducing the tax burden on mobile could also increase the tax base, presenting the potential for the government to recover these revenues.

The additional economic growth arising from the reduction or elimination of the excise duty or the numbering fees could create more revenue for the government and potentially enable the government to reach tax neutrality by 2020.

The impact on government revenues of the tax policy alternatives analysed in this report are illustrated in Figure 22. The impacts of each policy are estimated independently and their interaction is not considered.

Potential additional tax revenues compared to the base case under tax policy alternatives



Deloitte analysis based on operator, GSMA intelligence database, IMF and World Bank data

Figure 22

4.2 Options to align mobile taxation to standard goods taxation

By transitioning to a taxation structure where mobile is taxed equally to other goods and sectors, the government of the DRC can promote digital inclusion, increase productivity and generate economic growth, whilst also ultimately benefitting from increased tax revenues. This could produce positive spillovers throughout the economy and society of the DRC: the government, mobile operators, consumers and the economy as a whole. Moreover, the subsequent spread of mobile services could contribute to the economic and social objectives of the DRC, improving access to life-enhancing services such as banking and agricultural applications and facilitating the country's transition to a knowledge-based economy.

By working in partnership with the mobile operators to minimise the distortions and inefficiencies created by sector-specific taxation, the government of the DRC has the opportunity to make progress on its key development ambitions.

- **Development of ICT usage across sectors:** By reducing mobile-specific taxation, the government could increase the number of mobile broadband connections, promoting digital inclusion. This has the potential to enable the widespread use of ICT across areas such as banking, agriculture and the provision of government services. This has the potential to provide new opportunities for innovation and the development of new applications and content, fostering further growth within the sector.
- **Increased economic development:** Based on the modelling described above, the tax reform alternatives examined have the potential to increase the usage of mobile services and uptake of mobile broadband and in the longer term has the potential to increase investment in the mobile sector and GDP.
- **Support in the transition towards a knowledge-based economy:** Reforming mobile sector taxation has the potential to encourage wide spread use of mobile broadband and the development of mobile applications for use in agriculture, healthcare and education, and the creation of local content can also promote higher-skilled employment and the transition to a knowledge-based economy.
- **Improved network infrastructure:** Ensuring an equitable structure of regulatory fees has the potential to increase the investment required to further improve mobile broadband network infrastructure. Further international investment could allow for economies of scale for mobile operators, allowing reduced prices for consumers in the longer term and facilitating the spread of mobile broadband.
- **Sustainable government revenues:** Achieving the government's ICT objectives need not result in a reduction in government revenues in the medium to long term. By increasing productivity and economic growth, eliminating the excise duty on mobile services has the potential to generate up to US$ 28 million in additional tax revenue in 2020.

Based on evidence from a series of studies[53] and the best practice principles outlined in Table 4[54], as well as on consultation with GSMA and mobile operators, a number of areas for tax reform have been identified which could support the mobile sector to further contribute to economic growth and government revenues over and above its current impact:

- **Reduce specific taxation of the mobile sector:** Higher than normal taxation on mobile operators and consumers distorts production and consumption behaviour; it may limit usage of digital services, reduce the ability of mobile operators to finance investment in digital infrastructure, and can in the long term reduce government revenues.

- **Apply phased reductions of taxes on established services:** A phased reduction of mobile specific taxes offers the government the opportunity to benefit from the economic contribution from mobile whilst limiting short-term fiscal costs.

- **Facilitate the development of emerging services through supportive taxation:** The growth of mobile data and other innovative applications opens up the possibility for the sector to increase its economic value through a whole new generation of products and services ranging from health care services to education and finance.

- **Reduce complexity and uncertainty of mobile taxation:** Taxation on the mobile sector has increased over the years in the DRC. Any unpredicted tax change that occurs after investment in spectrum licence is made may negatively impact an operator's business plan. The risk of future tax rises is priced into investment decisions and can therefore be expected to reduce both foreign direct investment and domestic investment in the medium-term.

53. GSMA/Deloitte, studies on digital inclusion and mobile taxation in Ghana, Tanzania, Pakistan; GSMA/Deloitte (2014), Mobile taxes and Fees - A Toolkit of Principles and Evidence.
54. IMF (2001), Tax policy for developing countries.

Appendix A Methodology

A.1 Estimation of the economic impact of a tax change

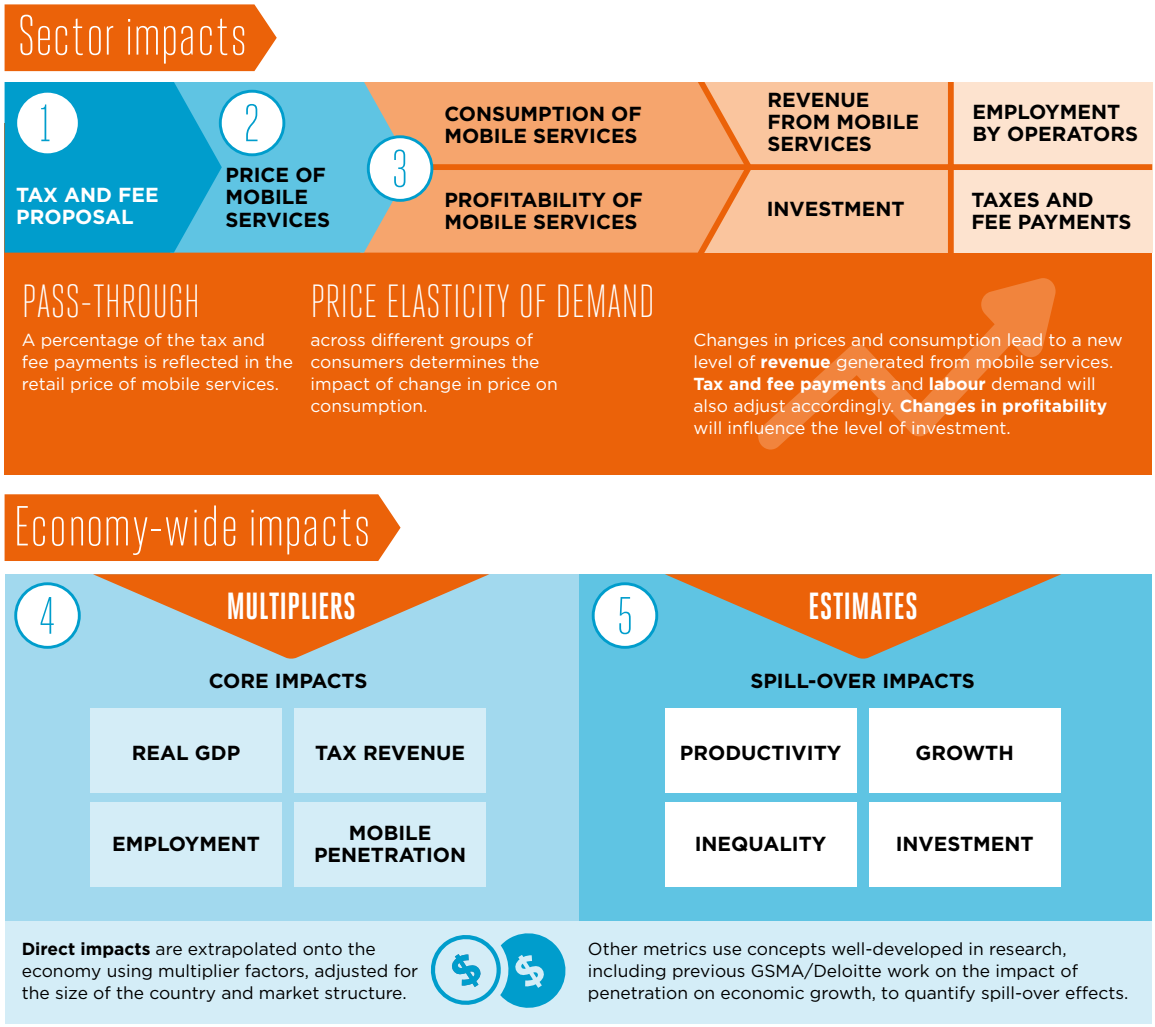
In order to conduct the tax scenario analysis, an economic model was created to describe the mobile sector and the macro-economy of the DRC. This model is able to forecast the impacts of more than 25 sector-specific and macroeconomic variables up to 2020, which can be driven either by removing or changing current taxes and fees or by the introduction of a new tax or fee.

Firstly, a base case scenario is developed for the mobile sector and economy, where taxes and fees remain at their current level throughout the period 2016-2020. Then, a simulation of alternative policy scenarios quantifies the economic impact of reformed mobile sector taxation. It is assumed that the tax policy is implemented in 2016 and the model estimates the effects up to 2020. The impacts of each policy are estimated independently and their interaction is not considered.

Modelling the macroeconomic impact of changes to mobile taxation in the DRC

As illustrated in Figure 23, the following steps are involved in the modelling process:

Schematics for modelling the economic impacts of mobile taxation changes



Source: Deloitte analysis

Figure 23

- The tax or fee change affects the price of mobile services. This depends on the extent to which the tax reduction is passed on to consumers, modelled by a pass-through rate which determines the percentage of the tax and fee payments that is reflected in the retail price of mobile services. All assumptions in the model are described in more detail in the section below.

- Changes to the price of mobile services affect their consumption. In order to estimate this, assumptions are made on the price elasticity of demand[55], which measures how much demand for mobile services will change in response to a price change.

- Changes in prices and consumption alter the amount of revenue generated from mobile services. Increased demand generates additional employment opportunities in the sector, while increased operator revenues enable additional capital expenditure on the development of network infrastructure.

- These sector impacts lead to economy-wide impacts, which are estimated through assumptions that describe the impact of the mobile sector on the wider economy in the DRC. These effects include the impact on GDP, calculated through a multiplier that links mobile and 3G penetration rates to economic growth, and the effect on employment, calculated through a multiplier which estimates the number of jobs created

55. An elasticity describes the quantitative impact of a variable on another variable; the usual notation is that a 1% increase in a variable will lead to an x% change in another variable.

across the economy for every job created within the telecom sector. The proliferation of mobile services is captured by an increase in productivity, quantified through the change in Total Factor Productivity (TFP).

- Thanks to additional GDP growth from reformed taxation on mobile, the potential short-term loss of tax revenues from the mobile industry can be offset by tax revenues from more broad-based consumer and operator taxes.

The inputs for the model are provided by operators in the DRC, the GSMA and publicly available statistics from the World Bank and the IMF and include forecasts for 2015 and subsequent years. The outputs are derived based on estimates of the elasticity of demand for mobile services from a number of developing markets, while the impacts of mobile and broadband penetration on GDP have been derived from econometric studies of similar developing markets.

A.2 Key assumptions behind the model

The assumptions underlying the model have been researched from a review of academic literature and previous studies in this area. These are discussed in more detail below.

Pass-through rates

Taxes and fees paid by mobile operators and consumers may be completely or partly passed-through to the end-consumer prices. The level of pass-through of taxes and fees to final prices will depend on market power and the price elasticity of demand, among other factors. For this analysis, an average pass-through rate of 1 has been assumed for taxes that fall directly on retail prices. This reflects the high level of competition in the market in part due to the introduction of new operators gaining increasing market share.

Price elasticity of demand

A change in the price of mobile services leads to a change in the consumption of these services, both in terms of ownership and usage. Consumption changes depend on the price elasticity of demand, that is, the responsiveness of consumers to price changes. The assumptions regarding elasticity of demand are based on a review of studies conducted in a number of developing markets on the elasticity rates observed in recent. The elasticity of demand for mobile subscriptions is assumed to be -0.83[56]. For those that own mobile devices, demand for mobile services is more elastic: the elasticity of demand for mobile services is assumed to be -0.95, based on a number of studies within the field[57].

Employment multiplier

The employment multiplier is used to estimate the impact of a change in employment in the sector on total employment in the economy. The magnitude depends on the economic features of the sector, such as the degree of interconnection across the supply chain. The employment multiplier is assumed to be 11.1[58]. That is, for every additional job created within the mobile sector, an additional 11.1 jobs are generated in the wider DRC economy.

Market penetration Impact

There is substantial evidence in the literature on the impact of mobile penetration on GDP growth. Robust analysis has been conducted by Deloitte into the impact of mobile and 3G penetration on GDP growth. For this analysis the multiplier associated with mobile penetration is assumed to be 0.28%; that is, a 1% increase in market penetration leads to an increase in GDP growth of 0.28 percentage points.[59] In terms of the impact of internet penetration, it is assumed that a 1% increase in internet penetration increases the GDP growth rate by 0.077 percentage points in African economies.[60] This model does not model switching between 2G and 3G services and so these impacts are treated separately.[61]

56. Chabossou et al. (2009); UK Competition Commission, 2003.
57. See, for example: Gruber and Kontroupis (2010), Mobile telecommunications and the impact on economic development; Wheatley, J. J. (1998), Price elasticities for telecommunication services with reference to developing countries; GSMA (2005), Tax and the digital divide: How new approaches to mobile taxation can connect the unconnected.
58. This figure was based on a number of studies conducted in developing and developed countries; see, for example, Moretti (2010); O2 for ONS (2002); Ovum (2010); Zain, Ericsson (2009); Kaliba et al (2006).
59. This is based on a Deloitte study of 40 African economies over the period 1996-2011; the report is unpublished but for full details of the methodology, see Deloitte/Cisco/GSMA 2012: The impact of mobile telephony on economic growth http://www.gsma.com/publicpolicy/wp-content/uploads/2012/11/gsma-deloitte-impact-mobile-telephony-economic-growth.pdf.
60. Qiang, C. Z. W., Rossotto, C.M. (2009), Economic Impacts of Broadband, in *Information and Communications for Development 2009: Extending Reach and Increasing Impact*, World Bank, Washington D.C., 35-50.
61. That is, given that it is not known whether a new 3G subscriber may previously have been a mobile user, this is treated as an increase in internet penetration only, not as an increase in mobile and internet penetration.

Total Factor Productivity Impact

The impact on TFP is calculated based on the change in GDP, employment and investment. TFP is a measure of economic productivity that accounts for changes in output over and above those expected as a result of increased employment and investment. It is defined as follows:

$$TFP = \frac{GDP}{Capital^{a} Labour^{\beta}}$$

where it is assumed that a = 0.3 and β=0.7[62].

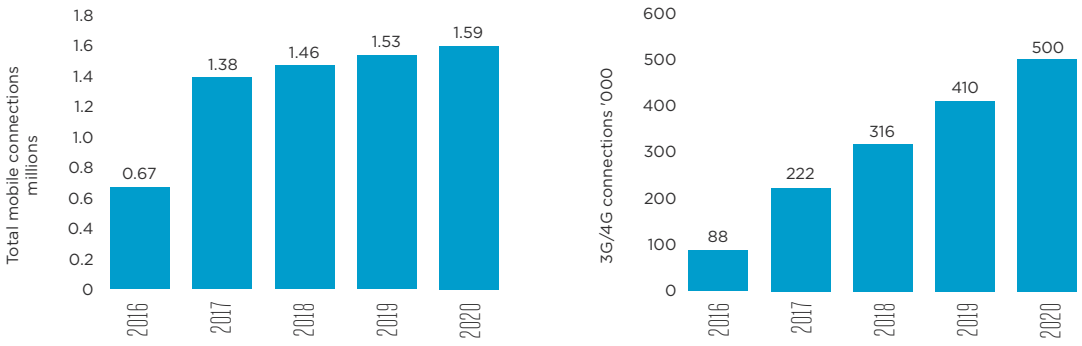
A.3 Scenario simulation results

This report uses a macroeconomic model in order to assess the impacts of a change in taxation policy on the mobile sector and the wider economy. Three scenarios were addressed and each compared against the base case scenario, where there is no change in tax policy. The overall findings of each scenario are described in more detail in the sections below, on the assumption that the change in tax policy is implemented in 2016.

Scenario 1

Scenario 1 models the reduction of the excise tax on mobile related products from 10% to 5%. This reduction is passed through to consumers in the form of lower prices which could stimulate an additional 1.6 million mobile connections by 2020, with usage in 2020 1.0 billion minutes higher relative to the base case. This could raise total market penetration by 2.4% relative to the base case in 2020, extending access to mobile telephony more widely across the DRC. The increased affordability has the potential to encourage consumers to take-up new services and additional 3G/4G connections could be up to 500,000 in 2020.

Potential additional impact on total mobile penetration (left) and mobile broadband penetration (right) in Scenario 1 relative to the base case



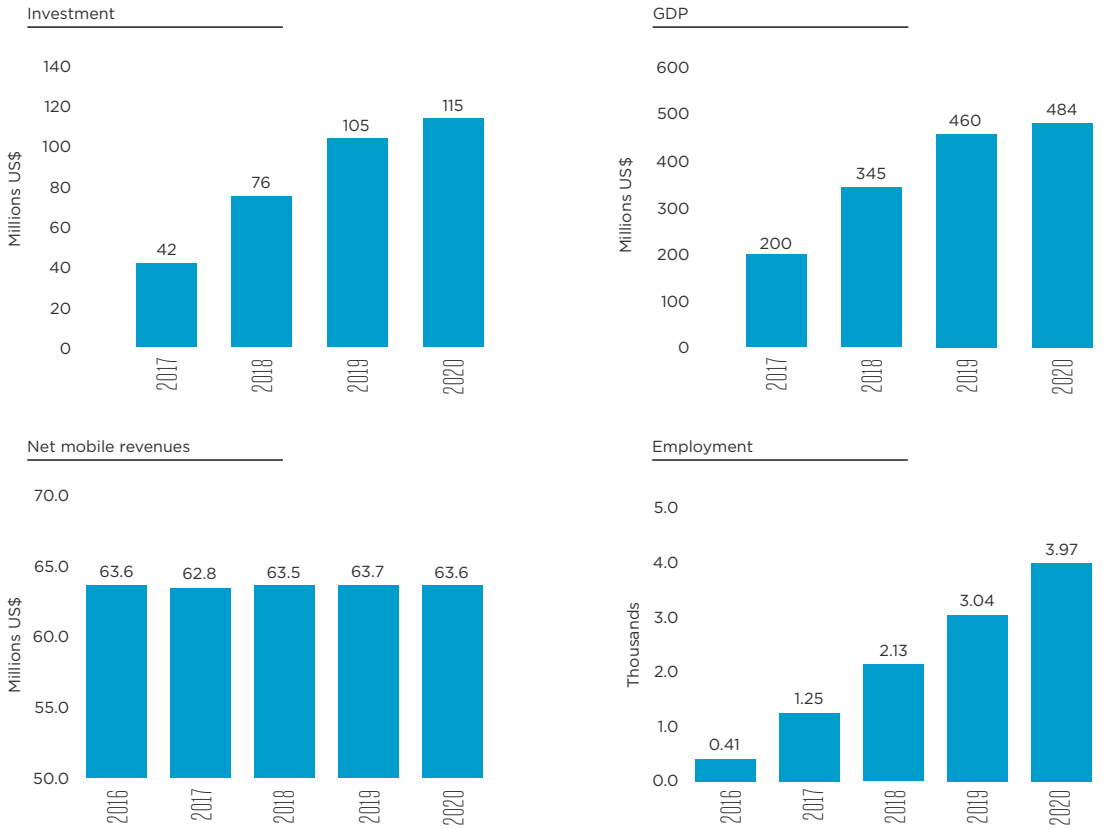
Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 24

62. Bassanini A and Scarpetta S (2001), The Driving Forces of Economic Growth: Panel Data Evidence for the OECD countries.

The increase in connections could subsequently benefit both the mobile sector and wider economy. Increased usage could increase operator revenues by US$ 64 million, enabling an additional US$ 10 million of capital expenditure, which could be used for expanding additional sites across the DRC, further increasing coverage of mobile broadband services. Increased economic activity and the development of technology and innovation as a result of the growth of the mobile sector could then be reflected in an additional US$ 484 million and US$ 115 million in GDP and investment respectively relative to the base case in 2020, whilst employment could also rise by 3,970 relative to the base case. Cumulatively, the amount of economic output and investment in the DRC for the period 2016-2020 could increase by US$ 1.5 billion and US$ 337 million respectively. In addition, 519,000 fewer people would be living in poverty[63].

Potential additional impact on macroeconomic indicators in Scenario 1 relative to the base case



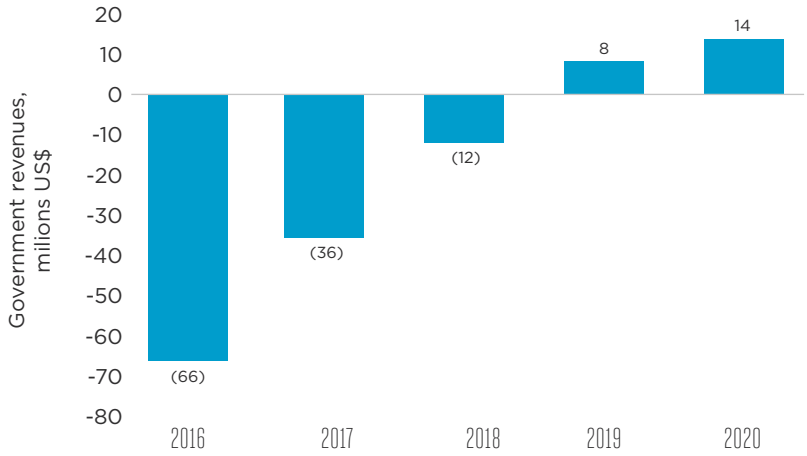
Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 25

63. National poverty lines differ from the widely recognised threshold of less than $1.25 a day in that they are adjusted based on country-specific characteristics. For more details see: http://data.worldbank.org/indicator/SI.POV.NAHC

As a consequence of wider economic growth, it is estimated that the government of the DRC could also benefit from increased tax revenues in 2020 relative to the base case. Although tax revenues could fall in the first years following the reduction in the excise tax, the expansion of the tax base following wider economic growth could result in tax neutrality by 2019 and an increase in tax revenues by over US$ 14 million relative to the base case in 2020.

Potential tax revenues in Scenario 1 relative to the base case



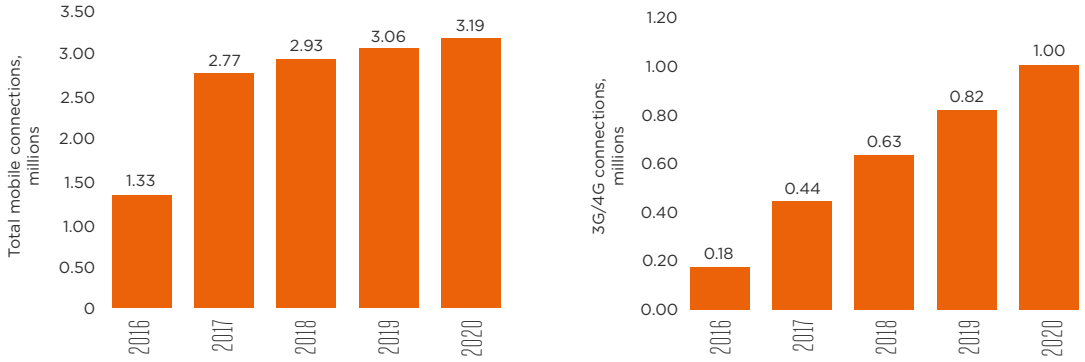
Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 26

Scenario 2

Scenario 2 models the elimination of the excise tax on mobile services. It is estimated that the resulting reduction in the cost of mobile services could stimulate an additional 3.2 million mobile connections in 2020 relative to the base case, 1.0 million of which would be mobile broadband. This represents a 4.9% increase in total mobile penetration relative to the base case. Furthermore, the reduced cost of mobile usage could generate an additional 2.1 billion minutes in 2020 compared to the base case scenario.

Potential additional impact on total mobile penetration (left) and mobile broadband penetration (right) in Scenario 2 relative to the base case



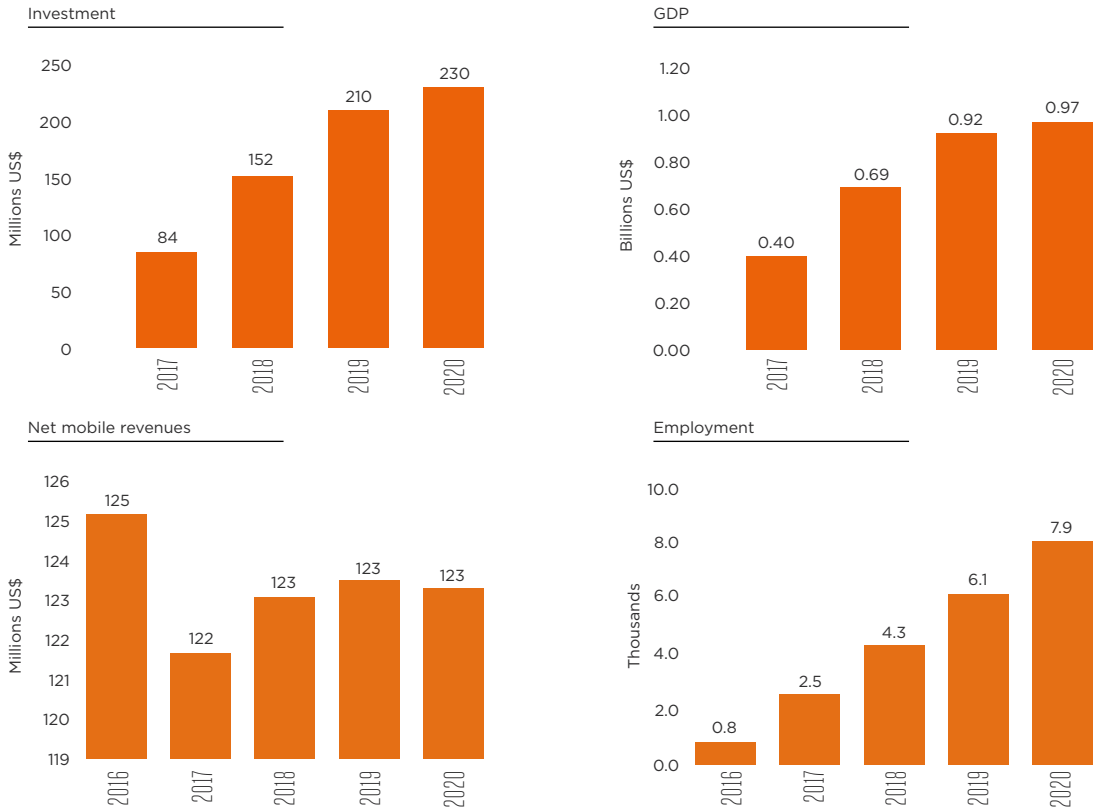
Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 27

Positive spillovers across the economy as a consequence of this growth could stimulate an additional US$ 970 million in GDP and US$ 230 million worth of investment in 2020 relative to the base case. This could create employment opportunities for over 7,900 Congolese, whilst the workforce could also be 1.3% more productive. In addition, the number of Congolese living in poverty could be 1.0 million lower.

The increase in usage and take-up of new services could also benefit mobile operators in the form of an additional US$ 123 million in total sector revenues. This could allow mobile operators to increase capital expenditure on the development of network capacity by US$ 20 million relative to the base case in 2020, which could deliver additional mobile broadband sites across the region.

Potential additional impact on macroeconomic indicators in Scenario 2 relative to the base case

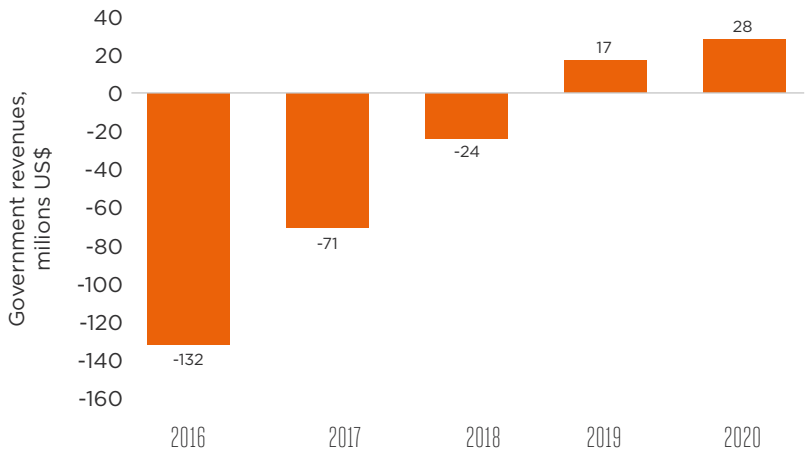


Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 28

Together with this macroeconomic improvement, the government of the DRC stands to benefit from increased tax revenues as a result of wider economic growth and the expansion of the tax base. It is estimated that the government could achieve revenue neutrality by 2019 with additional tax revenues of US$ 28 million in 2020 relative to the base case.

Potential tax revenues in Scenario 2 relative to the base case



Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

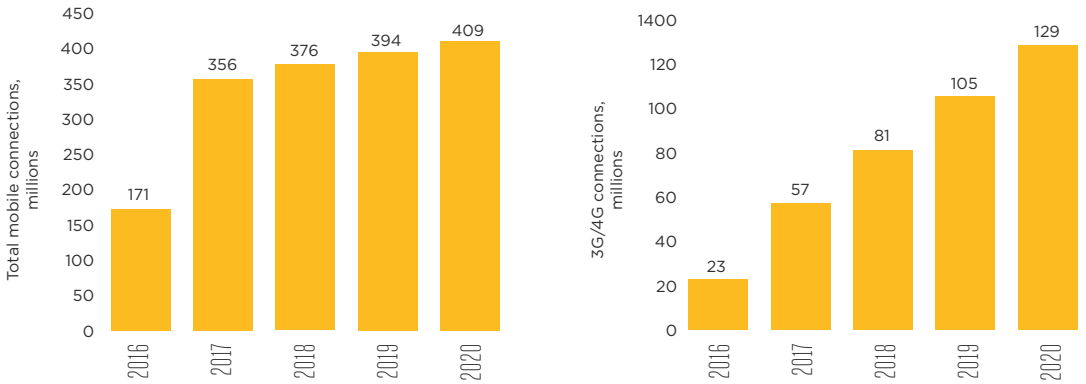
Figure 29

Scenario 3

The third scenario models the halving of standard numbering fees. Through the savings achieved by mobile operators, this could increase investment and demand for mobile services, meanwhile decreasing barriers to affordability and thus further sustaining penetration and economic growth.

The tax reduction could decrease the cost of accessing mobile services, increasing total connections by 409,000 of which 129,000 could be mobile broadband enabled over 3G. It is estimated that this could represent an increase in total mobile penetration of 186,000 unique subscribers relative to the base case in 2020.

Potential additional impact on total mobile penetration (left) and mobile broadband penetration (right) in Scenario 3 relative to the base case

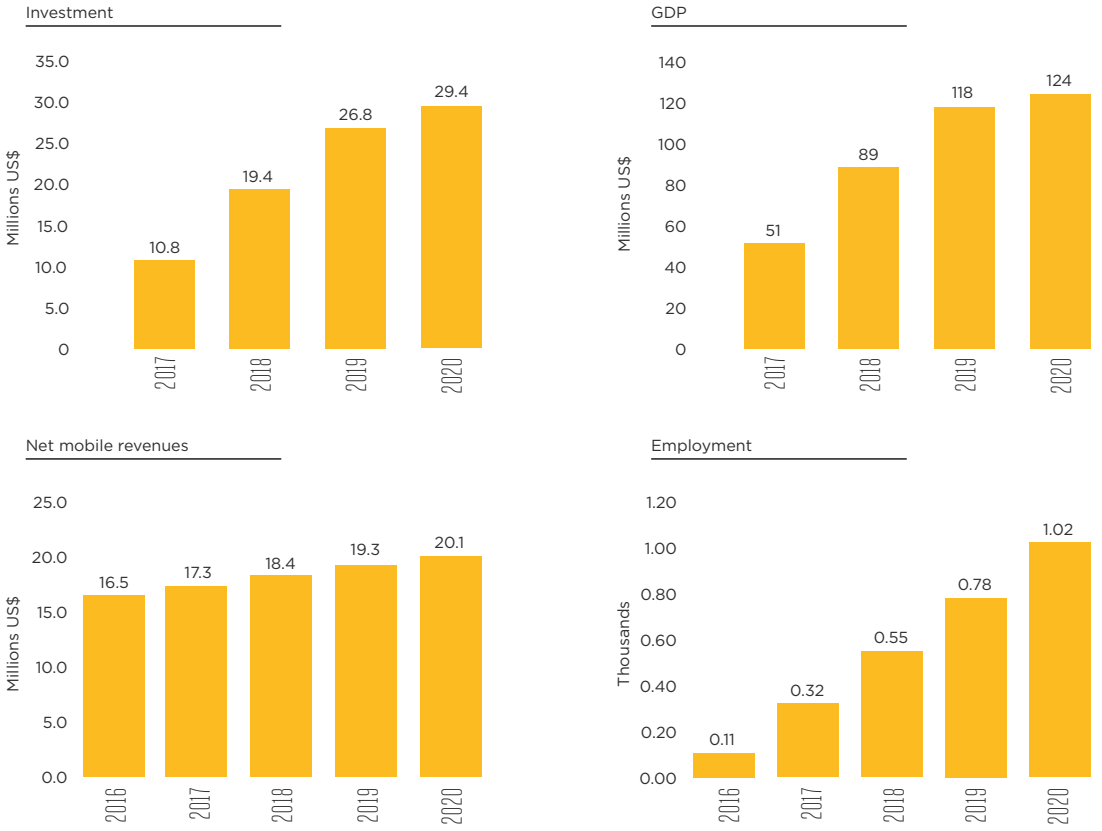


Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 30

The increase in usage of mobile services could increase net operator revenues by US$ 20.1 million relative to the base case in 2020. The positive spillovers from the mobiles sector, particularly towards the development of technology and knowledge-based sectors in the DRC, have the potential to increase GDP and investment across the country by US$ 124 million and 29 million respectively, whilst also increasing employment by over 1,000 relative to the base case in 2020. In addition there could be an extra reduction of those living in poverty by 133,000 people relative to the base case in 2020.

Potential additional impact on macroeconomic indicators in Scenario 3 relative to the base case

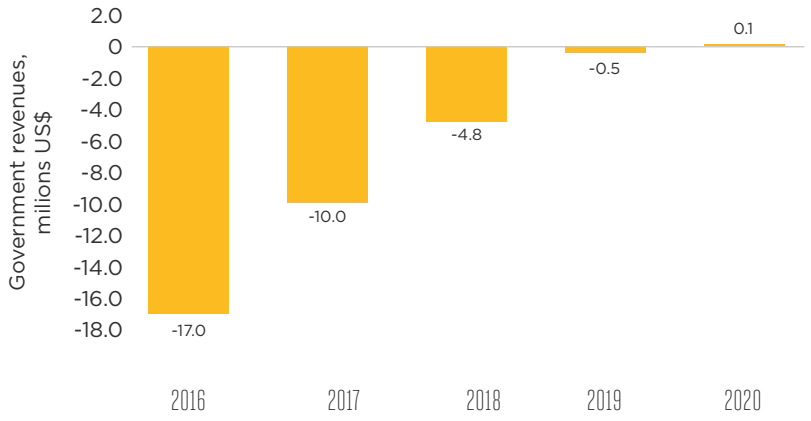


Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 31

The increase in growth of the mobile sector and wider economy, following the reduction in regulatory fees, could subsequently broaden the tax base and hence government tax revenues over time. By 2020 the government of the DRC would be US$ 124,000 better off than it would be without the tax reduction.

Potential tax revenues in Scenario 3 relative to the base case



Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 32

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